Railway Age

SECOND HALF OF 1924—No. 5 NEW YORK– AUGUST 2, 1924—CHICAGO SIXTY-NINTH YEAR

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Volume 77 Number 5

Published Weekly by Simmons-Boardman Pub. Co., 30 Church St., New York, N. Y. Subscription Price U. S., Canada and Mexico, $6.00; foreign countries (excepting daily editions), $8.00, and $10.00 a year including all dailies; single copies, 25c. Entered as second-class matter January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

EDITORIAL

Railway Age

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Simplified Practices in Lumber

The present status of the movement for the simplification of the practices in the lumber industry is outlined briefly in an article appearing on another page of this issue which also gives a summary of the suggested plan of standardization. Just how successful this project will be cannot be predicted. However, it is clear that the extension of the plan of standardization to other phases of mill and commercial practices in the lumber industry will depend almost entirely on the success which attends the initial movement. There are those, of course, who feel that the work has not gone far enough, that to designate as a one-inch board a piece that is only 25/32-in. thick comprises an unwarranted adherence to so-called trade practices which should have no place in engineering work. These critics are wont to draw comparisons with practices in the iron and steel industry wherein with few exceptions one-inch or any fraction or multiple thereof means exactly that and nothing more or nothing less. However, as between aspirations for the unobtainable ideal and the efforts toward a practical improvement in the direction of the ideal, it would seem that the second represents the best policy under the circumstances. These measures for standardization are after all in the nature of a compromise. It is only through compromise that agreements can be reached and if through such standardization the purchaser of lumber is enabled to know what he will get, it is better so than for him to know what he wants and not be able to get it.

Inadequate Suburban Service

What would happen if some railroad which is operating suburban passenger service at a loss—as a great many of them undoubtedly are—should forcefully and continually put before the public all the facts in the case? The usual procedure in the past has been for the roads operating this class of service to claim, generally somewhat timidly, that the service does not pay, but to avoid making a direct issue of it, meantime continuing to improve the service sparingly in the places where some action is badly needed. A policy of "lying low" on this question, however, benefits neither the railroad nor the public. The railroad which continues to operate and to sink capital in an unremunerative service without at least a vigorous and continued protest, only postpones a thoroughgoing solution of the transit problem in the community which it serves. How much better it would be to have a showdown on the problem! If the service is provided at a loss and if the company does not propose to spend any more than it actually has to for new stations, grade crossing elimination, electrification, new equipment, etc., should not the public be told so frankly? The average man is fair-minded enough not to expect anyone to serve him at less than cost, provided always that he is convinced that the price he pays is actually below the cost of service. Half-hearted claims unsupported by detailed figures do not convince him. In places where the service is actually remunerative and where existing facilities are adequate, no action is, of course, needed—but such places are far from the rule. Elsewhere, would it not be well to inform the public as frequently and as forcefully as possible by statements to the newspapers, advertisements and posters just what the facts are? Then, if the people still desire improved facilities, they will eventually come to the realization that they, and not the railroads, must pay for them. There are probably many places in this country where the public would be willing right now to pay, either as taxpayers or as farepayers, for improved railway facilities if they did not cherish the delusion that some day they would secure these improvements at the railroads' expense. The railroads would be doing themselves as well as the public a favor if they would do what they could to destroy this delusion.

Automatic Train Control Order Modified

The Interstate Commission's report on automatic train control, abstracted on another page, will clarify the air very appreciably. It does not abate the pressure on the 49 roads named in the order of 1922 (except in the very material concession which allows a rule permitting enginemen under suitable regulations, to suspend or forestall at will the automatic application of brakes) and every one of these roads is still subject to an absolute order to have its whole-division installation ready for operation in five months from today; but the consent of the commission to joint consideration of the problems still to be solved constitutes gratifying evidence of both constructive and conservative purpose. This report, with Commissioner McManamy's amplification and Commissioner Esch's objections, will afford a most useful and satisfactory epitome of the voluminous proceedings of the hearings held at Washington last May, which will be appreciated by those railroad men and others who did not attend those hearings. It is now evident that all of the members of the commission are interested, and intelligently interested, in reaching a rational solution of this monumental problem. This is cause for congratulation. There would perhaps have been some excuse for delegating the settlement of a question of such technical intricacy to one of the "Divisions" of the Commission; but that would undoubtedly have been a mistake. The actual progressive results to be reaped from the present decision must largely depend, of course, on the constitution of the proposed joint committee. When that body announces its plans, some normal progress in the solution of train control problems may be looked for.

Motor Equipment and Railroad Standards

In discussing the future of gasoline rail equipment before the Society of Automotive Engineers early this year, E. J. Brennan, superintendent of motive power of the Chicago Great Western, said, "All bolts and nuts wherever possible throughout the entire equipment should be made to U. S. instead of S. A. E. standards. Accessibility and standardization of parts is important so as to reduce as much as possible the number carried in stock." Strongly dissenting voices were heard at the suggestion to depart from S. A. E. thread standards, and it is doubtful if manufacturers who build gasoline

motors for the industrial as well as the railroad field would be justified in departing from the standards set by the Society of Automotive Engineers. Without these standards quantity production of gasoline motors and the repair parts required for their maintenance would be impossible, at least on as large a scale, and the cost would be correspondingly increased. In the discussion of Mr. Brennan's paper, there was general agreement, however, that manufacturers building exclusively for the railroad field should conform as closely as possible to railroad standards, particularly in the design of car bodies, trucks, brake equipment and other details. The railroads will thereby be required to carry fewer parts in stock, a particularly important consideration when gasoline motor equipment is moved from one division to another, as is frequently necessary. Moreover, railroad men will more readily learn how to use equipment when they are familiar with at least some of its details. In case of accident standard parts from railroad stock can be obtained more quickly and delays avoided. This last point was strikingly illustrated in the case of a two-car gasoline motor train which broke a front axle as described in an article, "Accident Fails to Delay Motor Train" on page 172 of the July 26 *Railway Age*. According to the report, this axle broke due to defective material and yet the design of the equipment was such that with a few slight changes a standard wrecking truck could be substituted and the train come in under its own power. The desirability from many points of view of having gasoline rail equipment conform as closely as possible to railroad standards is apparent.

"Progressives" Blacklist the Farmers' Friends

THE RAILWAY LABOR LEADERS and their nominee for president, Senator LaFollette, are seeking the votes of the farmers for Mr. LaFollette upon the ground that they and he are the only real friends of the farmers. They have been relying upon carrying some western and northwestern states for their program of government ownership of railways by the votes of the farmers.

While professing to be the friends of the farmers, they have taken action which affords the most conclusive possible proof that they care nothing whatever about the farmers' wishes or interests, and that the only thing they really do care about is their program for first, securing the passage of the Howell-Barkley bill, secondly, wrecking the railroads financially, and finally to bringing about government ownership. The action which affords proof of this is their making of a "blacklist" of members of Congress which has been sent out through the press from Washington and which was published in "Labor," the official organ of the railway labor leaders, for July 26.

To grasp the full significance of this "blacklist" it is necessary to recall that during the last session of Congress several bills specifically designed to help the farmers were introduced, and also the Howell-Barkley bill which was written by the railway labor leaders and was their pet measure. The LaFollette movement is claimed by its promoters to be a movement equally in the interest of the farmer and the working man. The "blacklist" of congressmen which has been made public is a list giving the names of congressmen that the so-called "progressives" are urged to vote against because these congressmen did not vote in accordance with the true "progressive" faith at the last session of Congress. Now, if the LaFollette movement were really a movement in the interest both of the farmers and of working men it is obvious that the test applied by its promoters in deciding whether to urge their followers to vote for or against a candidate for Congress would be his record regarding both proposed farm legislation and proposed labor legislation.

What test actually has been applied? Primaries for the nomination of members of Congress are to be held in eight states in the first two weeks of August. In the article in which "Labor" published the names of the blacklisted congressmen, it said: *"So far as the members of Congress in these states are concerned the vote on the Howell-Barkley bill furnishes an excellent test of their progressiveness.* It is pretty safe to vote for the men who consistently supported the workers during the long struggle over this important piece of legislation." It then gave a list of forty congressmen in the states mentioned that "progressives" are urged to vote against. *Every one of these congressmen voted against the Howell-Barkley bill.* But how did they vote on farm relief legislation? The principal bill introduced in the interest of the farmers was the McNary-Haugen bill. It may or may not have been a good bill, but those who voted for it did so because they believed it was in the interest of the farmers and that the farmers wanted it passed. Of the forty congressmen included in the "blacklist" published in "Labor," *seventeen voted for the McNary-Haugen bill.* In other words, if a congressman voted against the Howell-Barkley bill he is placed on the "progressive" blacklist *even though he worked and voted for the bill that many hundreds of thousands of western farmers especially wanted passed and which was supported by almost every farm organization in the country.*

Indeed, the list of congressmen blacklisted by the "progressives" includes many who have been most conspicuous in their support of farm relief measures. The authors of the Capper-Tincher bill, which was passed a few years ago for the especial benefit of the farmers, were Senator Capper and Representative Tincher of Kansas. Representative Tincher is included in the blacklist. Senator Capper has for years been the leader of the "farm bloc" in Congress. Of him "Labor" says, "his record is far from satisfactory." Representative Hoch of Kansas not only has supported all the "farm relief" measures, but was extremely active during the last session of Congress in pressing a bill contemplating a readjustment of freight rates especially in the interest of the farmers. He is on the "blacklist." Other members of the lower House who voted for the McNary-Haugen bill, but who are on the blacklist, are Anthony, Sproul, Strong and White of Kansas, Faust, Milligan, Roach and Manlove of Missouri; Cable, Brand, Murphy, Moore and Kearns of Ohio; Reece of Tennessee and Johnson of Kentucky.

The *Railway Age* has in editorials in recent issues given much evidence to show that Senator LaFollette was really nominated by the railway labor leaders and socialists, and that his candidacy is intended principally to promote the Howell-Barkley bill, which the railway labor leaders wrote, and government ownership of railways, for which they have been carrying on propaganda for years. We have shown heretofore that the temporary and permanent chairman and also the chairmen of the four principal committees of the convention that nominated LaFollette were high officers of railway labor unions. We have shown that the platform adopted does not specifically declare in favor of any legislation for the relief of the farmer, but that it does advocate repeal of the Esch-Cummins act, which would automatically destroy the Railroad Labor Board, and for public ownership of railways in terms which mean the Plumb plan of public ownership and employees' management.

Now, as if to make the evidence complete, that the LaFollette movement is solely a railway labor leaders' and socialists' movement, the "progressives" come out with a blacklist which advises "progressives" to vote against forty congressmen who voted against the Howell-Barkley bill and include in the list seventeen who voted for the farmers' measure, the McNary-Haugen bill. Not a single congressman is blacklisted if he voted against the McNary-Haugen

bill and for the Howell-Barkley bill, but seventeen are blacklisted because they voted against the Howell-Barkley bill, although they voted for the McNary-Haugen bill.

Do the farmers need any better evidence that the pretense that Senator LaFollette's candidacy is in the interests of the farmers is the rankest hypocrisy? Do they need any better evidence that his campaign is being conducted entirely by the railway labor leaders and the socialists, and solely to promote the purposes of these men? If they do, then it certainly requires a great deal of evidence to convince the farmers of something that should be perfectly obvious to them.

A Significant Controversy

THE CONTROVERSY which has arisen between the Railroad Labor Board and officers of the two brotherhoods of employees in engine service affords a striking illustration of the arbitrary determination of certain railway labor leaders to have disputes arising between them and the railways result either in settlements in which the labor leaders will get all they want, or in strikes.

Some months ago the New York Central granted an advance in wages to its employees in train service. Its example was followed by other railways in the East and South. Subsequently, negotiations were opened between a Conference Committee of Managers representing the western lines and officers of the conductors' and trainmen's unions with reference to a similar advance in wages in the West. The negotiations resulted in an agreement under which the conductors and trainmen were granted an advance in wages, and in addition certain working rules were relegated to negotiations between individual railways and their employees with the understanding that if differences arose they should be referred to a board to be composed equally of railway managers and officers of the labor unions concerned.

When, still later, negotiations were opened between the Conference Committee of Managers of the western lines and officers of the locomotive engineers' and firemen's brotherhoods regarding the same matters, the committee of managers made substantially the same proposition that had been accepted by the conductors' and trainmen's brotherhoods. The representatives of the engineers and firemen rejected the proposition. They refused to agree to any considerable change of working rules. They also decline to relegate any rules of consequence to negotiation between the individual railways and their employees with the understanding that if differences arose they would be referred to a bi-partisan board.

The Conference Committee of Managers had been given authority by all the lines it represented to carry the negotiations to a conclusion. That it had authority to do so was shown by the result of its negotiations with the conductors and trainmen. So long as the managers' committee possessed this authority there could be no negotiations of any practical value between the individual railways it represented and the brotherhoods. The termination of the negotiations seemed to mean that a strike on the western railways was threatened. The Conference Committee of Managers, therefore, at once communicated with the Railroad Labor Board and asked it to take jurisdiction of the dispute. It did so and set a date for hearing. The officers of the brotherhoods involved refused to attend. The board then subpoenaed them and this week they refused to testify.

Counsel for the brotherhood leaders charged the Labor Board with having exceeded its authority in taking jurisdiction of the dispute. The Transportation Act provides that the Labor Board may take jurisdiction of a dispute on "its own motion if it is of the opinion that the dispute is likely substantially to interrupt commerce." It is the Board's own opinion of the situation by which the law says it shall be guided, not that of one of the parties. Counsel for the brotherhoods claim there was no danger of an interruption of commerce, but in view of the fact that they already had ordered strikes on certain railways because of inability to settle similar disputes by negotiations, the Board had good reason for apprehending they would take similar action on the western lines. Furthermore, the law provides that when the Board has taken jurisdiction of a dispute it may subpoena witnesses to testify regarding it and that if they refuse to do so, it may get an order from a federal court to compel them to do so.

The labor leaders in this case have shown, first, an unwillingness to do the very thing which they have proposed both they and the railways shall be required to do by the Howell-Barkley bill. That bill provides for the creation of adjustment boards composed equally of representatives of the railways and the labor unions to settle controversies regarding working rules and the interpretation of rules and agreements aleady in effect. The railways in this instance offered to join the labor unions in creating a bi-partisan board to do these very things, and the labor leaders declined the proposition. Why do they propose this method in the Howell-Barkley bill and refuse to accept it when it is offered to them as a means of settling a specific controversy? The only reasonable answer is that they want such controversies settled entirely by national boards of adjustment in order to increase the power of the labor leaders and standardize working rules and the interpretation thereof throughout the United States. Secondly, in this case they have refused to comply with the existing law by testifying in a case of which the Labor Board has assumed jurisdiction because, as provided by the law, it believes there is a dispute which threatens an interruption of commerce. Why will they not testify before the Labor Board? Undoubtedly because they want to reserve for use, if they think it is needed, the weapon of the strike, and if the Labor Board should hear this case and make an award they know that public opinion would condemn the labor leaders if they called a strike rather than accept the award.

It has been repeatedly asserted that adoption of the Howell-Barkley bill, involving as it would abolition of the Railroad Labor Board upon which public representatives hold the balance of power, would result in destruction of the peaceful methods which in most cases have been successfully used in settling labor controversies on the railways for more than four years, and in a renewal of strikes as a means of settling them. The leaders of the enginemen's brotherhoods seem to be doing their best in this instance to prove that the arguments made against adoption of the Howell-Barkley bill are sound.

Danger of a Car and Coal Shortage

THE COAL SITUATION in the United States is beginning to look very serious from the standpoint of the railways and the public, as well as from that of coal mines employing union labor. The railways at present have about 170,000 coal cars in good condition rusting their wheels on side tracks because they are given no coal to haul in them. Nevertheless, unless there is immediately a large increase in shipments of coal, there will be next fall and winter a shortage of coal cars, and, in consequence, a shortage of coal. These developments will be due to the fact that, although the price of bituminous coal recently has been the lowest in a long time, industrial concerns and domestic consumers, with astounding lack of foresight, are persistently refusing to buy it in normal quantities.

The amount of coal produced and shipped in the year 1923 was large. In consequence, on January 1, 1924, there

were about 62 million tons of bituminous coal in storage. This apparently is the largest amount ever held in storage except on Armistice Day and on April 1, 1922, at the beginning of the great coal strike. A slump in general business activity began last spring, and naturally, in view of the large amount of coal in storage, there was a decline in the amount produced and shipped. But the decline in the production of coal has been much greater in proportion than the decline in general business activity. The freight business handled by the railways is a good measure of general business. Now, while in the first six months of the year the movement of other kinds of freight was in the aggregate almost as large as last year, the decline in the production and shipment of bituminous coal was 17 per cent; and it is now running 3,300,000 tons a week under, or 30 per cent less, than at this time last year. Storage supplies have been largely drawn upon with the result that on July 1 they were as small as, or smaller than normal for that date. It seemed reasonable to expect that after the middle of the year there would be a substantial increase in the production and shipment of coal. On the contrary, there has been no perceptible change. Production and shipments continued to be less than 7,500,000 tons a week, an abnormally low figure.

The best measure of the nation's annual requirements of coal is the amount of it actually produced and consumed in the past. The average production in the seven years ended in 1923 was 495,121,000 tons. This includes four years of active demand, but also one year of profound depression and two years when there were great coal strikes. Therefore, to assume that in a year of moderate business activity a production of 500 million tons will be required for consumption and the maintenance of adequate storage supplies seems reasonable. The total production in the first twenty-nine weeks of 1924 was less than 247 million tons, or at the rate of 8,500,000 tons a week. It would appear, therefore, that the production required in the rest of the year will be about 253 million tons, or at the rate of approximately 10,900,000 tons a week. This would involve an increase in the demands upon the railways for the transportation of coal of about 28 per cent over the average demand in the first half of the year, and an increase of about 50 per cent over the demands made upon them within recent weeks.

The railways could meet these increased demands. Suppose, however, that shipments of coal should continue to average only 7,400,000 tons a week until September 1, and that after that there should be a demand for the railways to move enough of it to make the total amount transported during the year 500 million tons. The demands then made upon the railways in the last seventeen weeks of the year would be for the transportation of 12,300,000 tons a week. It is extremely doubtful that the railways could meet this demand. It would mean an increase of almost 70 per cent in the demand made by this one class of traffic within a few weeks. The effects of such extreme fluctuations in coal traffic upon transportation conditions were illustrated in 1922. The coal strike ended in September of that year and there was suddenly a vast increase in the demands for the transportation of coal. The small traffic for some months had made it necessary for the railways to reduce the number of employees and store a large number of locomotives and cars. It was an absolute impossibility for them to enlarge and reorganize their forces and relocate equipment quickly enough to cope with the changed conditions. The result was that in the closing months of 1922 they did not handle as much freight as they had in the corresponding months of some previous years, and yet had the largest car shortage in history.

Sooner or later there must be in the present year a large increase in the production and shipment of coal. The railways have demonstrated repeatedly that they can easily handle all the coal that is required if they are given a chance to handle it in a volume that is anywhere near uniform. They cannot handle it economically or satisfactorily when shipments fluctuate 50 to 75 per cent between different seasons. The huge increase in shipments clogs the transportation machine, and when the machine becomes clogged the demands for coal soon exceed the supply, and thereby abnormal increases in coal prices result. Business concerns and domestic consumers in the long run pay for these vast fluctuations in coal shipments in unnecessarily high transportation costs and unnecessarily high coal prices.

The best advice that can be given to industrial and domestic consumers is to order their next winter's supply of coal at once. They are more likely to pay higher than lower prices later on. Furthermore, if they continue to postpone placing their orders they will create transportation conditions which will make it impossible for many of them to get adequate supplies of fuel.

Permissive Blocking on Eight-Mile Sections

MOST AMERICANS are optimists and the great majority of railroad superintendents belong, no doubt, to this class. But the pessimist occasionally does us a good turn. The pessimistic railroad man gives us a useful thought when he declares that certain evils can never be cured; for example, the lazy flagman, or the engineman who seems to be totally incapable of making a proper whistle signal for the approach to a highway crossing. If the railroad pessimist of the present day is well informed he is likely to add to his "hopeless" list the engineman who can be depended upon always to run under control, according to the rule, when his only right to the road is a permissive manual block signal. There is no rule by which that engineman can be found. He does exist, no doubt, but where block sections are several miles long he is a rare bird. It is a somewhat anomalous state of affairs when, on automatic territory where block sections are short, practically all freight enginemen in regular operation have to run under control for one or more blocks probably every day, and are doing it successfully, the problem of getting the same class of men to exercise equal care on the long blocks of the manual system is so difficult. There is no essential difference in the physical conditions except that in one case the cautious running has to be kept up for a much longer time than in the other. There will be no question that the rule is equally well adapted to both situations; it is satisfactory in one case and, logically, it must be satisfactory in both. The only thing to be done, then, is to educate runners to obey a rule of which undeniably they already know the meaning.

The foregoing is suggested by the Interstate Commerce Commission's report of conclusions following the investigation of a recent collision at Lakeview, North Carolina, the account of which will be found in another column. As to this particular collision, it is to be assumed that the engineman at fault, if he has not been dismissed, has been lectured or admonished or talked with until he has given satisfactory evidence of ability and intention hereafter to follow the rule intelligently, and according to the trainmaster's understanding of it. But the main reason for giving these collision reports to the public is to make the lessons which they contain more readily available for the superintendents of other roads—for the whole country, in fact; and, we have emphasized this particular case because it is a notable example; also because, having resulted in no fatality to a passenger or a conductor, engineman, fireman, or brakeman, it is not likely to be widely known; again, because the recommendations of the government concerning automatic apparatus are liable to obscure the immediate lesson.

Most of the superintendents with whom we have discussed this subject seem to feel that the need of this education or teaching or admonition is constant, and that the duty of trainmasters (a) to keep themselves very thoroughly posted as to what the practice of every engineman is and (b) to use their knowledge as the basis of frequent interviews with those runners who have not saturated their minds with the principles of caution, is a point to which the superintendent himself should give regular personal attention. "Principles of caution" may not be an orthodox term, but it is one that may profitably be kept in mind. The main principle of caution when one has the duty of running under control through an eight-mile block section is that "under control" means what it says, and means it through every rod of the eight miles. It is a very simple principle, too simple almost, to need to be stated. But is not neglect of the most elementary duties a main feature of the obscure disease which Doctor Trainmaster has constantly to deal with?

We have suggested that one recommendation might obscure another. In point of fact, the main recommendation of the report is not formulated in exact language at all. The engineman did not run under control; the rule required that he should. These facts are stated. The obvious preventive of collisions tomorrow is to see that enginemen do obey this rule; but this is not explicitly stated. We call this the main recommendation because it is the one on which the officer immediately interested—the trainmaster—can act at once.

The second recommendation, that which calls for careful attention to air-brake conditions in making up every train is of secondary importance, as regards this collision, for it does not appear that insufficient or faulty brake power figured definitely in the cause.

The third recommendation, that the automatic block system is needed, can be adopted only after a considerable lapse of time. Probably a year would be required. To carry out the fourth recommendation, that automatic train control is needed, still more time would be required, as it is not so easy to decide what system of apparatus should be used.

In short, it is very desirable, as has been heretofore suggested in these columns, that the recommendations of the government concerning the prevention of collisions be systematized and put before the railroad world in more effective form. In a large proportion of the collisions which occur on roads not provided with automatic block signals these four elements of the remedy—(1) careful use of present facilities; (2) adoption of the real manual block system, not permissive blocking which is not blocking at all; (3) adoption of better facilities, that is, the automatic block system, and (4) adoption of means to improve on 3, which today, means automatic train control—all need to be considered in proper order and with due regard to conditions which may vary considerably on different roads or on different parts of the same road.

Why not a general essay, dealing with this feature of train operation? Reports on individual collisions are necessarily fragmentary, as regards the broad general subject. The British government has done a good deal of useful preaching in this way, through the reports of the Board of Trade inspectors on single collisions, for the past 40 years, but it is to be remembered that those reports were supplemented very carefully by annual or general reviews, or Parliamentary summaries.

Coming back, now, to the immediate duty as related to a lesson like that here under consideration, it is important to avoid waste of energy on non-essentials. One might discuss at any desired length the probable train of thought that passed through the negligent engineman's mind; but such discussion would not be of much value. The primary element in his wrong thinking would be stated by most critics as his unwarranted dependence on that part of the rule which says that the preceding train is not relieved from the duty of flagging. A second cause is the uneradicated habit of mind that the time-interval rule wholly or partly takes the place of the suspended space-interval rule; but there is no profit in distinguishing between primary elements and secondary ones. The engineman is told not to depend on the flagman and the point is the simple, plain, every-day, old-fashioned one of obeying orders. Is there any other useful theory on which we can act here? Mentioning the duty of the leading train certainly weakens the injunction to the following train and every superintendent knows it. So long as this hoary-headed weakness is tolerated in the rule the superintendent simply has to try to educate his enginemen in efficiency in spite of it. That education, as we have said, consists very largely in the simple process, that should be familiar to every officer having responsibility in this field, of talking with all the enginemen so fully, frequently and in such a friendly manner that the superintendent and the engineman come to think alike.

Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Geology and Mineral Resources of the Region Traversed by the Alaska Railroad, by Stephen R. Capps. U. S. Geological Survey Bulletin No. 755-C. 150 p. maps. Published by Govt. Printg. Off., Washington. Gratis from U. S. Geol. Survey.

The Integration of Industrial Operation, by Willard L. Thorp. A study of the concentration of industrial establishments and operating combinations based on material collected by the Bureau of the Census. Railroad repair shops are included in the groups studied. 272 p. Census Monograph III. Published by Govt. Print. Off., Washington. Price $1.00.

Railway Accidents. Report issued by Ministry of Transport, Great Britain, of accidents during the three months ended Dec. 31, 1923. 62 p. Published by His Majesty's Stationery Office, London, Eng. 5 shillings.

Periodical Articles

Art in Advertising, by Sir Edwin Lutyens. Particularly the results achieved by the British railways in their posters. Illustrated. "This tight little island never attempts to teach America, but we may be permitted to tell our American friends that we have stumbled or muddled our way into a great discovery which will heighten the standard of English life and better the efforts of English workers. That discovery is art in advertising," p. 114. English Life, July, 1924, p. 108-114.

Directory of Labor Officials in United States and Foreign Countries. State and federal labor officials, including those of the Railroad Labor Board, in this country, with officials of corresponding bureaux, commissions, etc., abroad. Monthly Labor Review, July, 1924, p. 245-266.

Industrial Railways—Their Advantages and Limitations, by Matthew W. Potts. Industry Illusrtated, July, 1924, p. 22-26, 50, 52, 57-60.

Labor and Railroading. An Interview with Samuel Rea, President of the Pennsylvania Railroad. World's Work, August, 1924, p. 436-439.

The Menace and Meaning of Nationalization, by E. T. Good. Review of nationalization of railways, telephones, etc., in Great Britain and elsewhere, with certain deductions. English Review, July, 1924, p. 122-133.

Railway Advertising. Service and Success, by Ivor Fraser. Paper before International Advertising Convention. Editorial comment, p. 1. Modern Transport, July 19, 1924, p. 9.

Railway Electrification. Papers before World Power Conference on electrification in Germany, Norway and Sweden. Modern Transport, July 19, 1924, p. 5-7.

The Revival of Railroad Romance, by Richard Field Griffen. About the Van Sweringen brothers and their railroads. New York Herald-Tribune Magazine, July 27, 1924, p. 1-2, 10.

New Books

Proceedings of the American Railway Bridge and Building Association. 256 pages, illustrated, 6 in. by 9 in. Bound in paper and cloth. Published by the association, C. A. Lichty, secretary, Chicago & North Western Railway, Chicago.

This volume contains the proceedings of the thirty-seventh annual convention of this association which was held at Seattle, Wash., on October 16-18, 1923. It includes reports, papers and addresses presented at this meeting and maintains the high standard of the technical work which this association has established during the course of its long existence. Of particular interest are discussions of the structural properties of Douglas fir, the application of concrete tanks to railway service, the heating of small passenger stations, water facilities in stockyards, the repair and renewal of ballast deck bridges, the supervision of bridge and building forces, the relative merits of the several materials used in culvert pipe, as well as a discussion of the reconstruction of culvert pipes under traffic and the development of a definite program for painting. The book also contains the constitution of the organization and a complete list of members.

Railway Stenographer's Handbook. By Edwin Donovan, formerly chief clerk to the chief engineer of the International & Great Northern Railway. 5 in. by 7 in., 178 pages. Bound in cloth. Published by Simmons-Boardman Publishing Company, New York. Price $2.

The 178 pages of this book are very skilfully packed with information of the kind indicated by the title, and errors are very few. The author evidently is himself proficient in the work which he essays to teach—which is not always the case in the field of railroad schooling—and he has the rare virtue of knowing how to leave out the non-essentials; there is hardly a line of padding in the whole book. The scope of the work will be well understood by a glance at the list of contents, the titles of the principal chapters being: Operating Department Organization, Applying for Employment, Shorthand, Typewriting, Dictating Machines, Correspondence Styles (samples of railroad officers' letters); the Stenographer, the Trainmaster's Clerk, the Private Secretary.

The book leads the young novice not only to become interested in the work of *a* railroad stenographer and to aspire to find his vocation in that line, but to aim at and work for a leading position—that is, *the* stenographer for the superintendent. A stenographer should not only aim to take dictation with speed and to write and handle letters with neatness, intelligence and despatch; he should aim to post himself fully in his employer's business with a view to qualifying himself for a higher position; and this book is an excellent guide for all such persons. The stenographer who is a chief clerk and who is thus ambitious, comes to perform a good deal of the work of the boss without being directed by the boss himself; if he does not make the mistake of going beyond reasonable bounds in this direction, he does a good thing for himself and for his employer; he increases his usefulness in his present job and educates himself for a higher one.

The author's style is clear and terse. Some of his teaching is directly copied from railroad companies' rules and handbooks and in this feature has the virtues and the defects of such handbooks. The great bulk of the work, however, is manifestly based on actual experience. Paragraphs containing what a machinist would call shop kinks, provide some of the most useful matter in the book.

The literary tone is that of the newspaper rather than that of a diplomatic bureau or a college president's office, and not every paragraph is "strictly business," but the reader will readily excuse these trifling vagaries. The only illustration connected with the text is that of a dictating machine, but the book is embellished with a few pictures of trains and big office buildings to relieve the severely practical character of the text.

THE ENGINEERING INDEX—1923. *700 pages, 6½ in. by 9½ in. Bound in cloth. Published by the American Society of Mechanical Engineers, New York.*

The twenty-second volume of the Engineering Index is the fifth one to be issued since The American Society of Mechanical Engineers acquired the Index from The Engineering Magazine Company and assumed the continuation of the service started 40 years ago by the Association of Engineering Societies. The typographical arrangement of the 1923 volume follows that of its predecessor with the exception of an improvement in the style of the main headings. It contains a brief review and index of articles which have appeared in publications and reports covering a wide variety of engineering subjects. In the preparation of this volume the staff of the Society reviewed publications in several languages and this edition of the Index presents what is probably the most complete reference to current literature on engineering and scientific subjects in existence.

The wide range of usefulness of this edition should particularly appeal to men in the railway field. Practically every phase of the construction, maintenance and operation of motive power, rolling stock, shops, terminals, signaling, track and yards have been covered by references to articles published in the leading technical magazines of the United States and foreign countries.

Proceedings, Wood Preservers' Association. 375 pages, 6 in. by 9 in. Bound in cloth. Published by the American Wood Preservers' Association, 1146 Otis building, Chicago. P. R. Hicks, secretary.

This book contains the proceedings of the twentieth annual meeting of the American Wood Preservers' Association which was held at Kansas City, Mo., in January, 1924, and may well be said to cover the latest developments in wood preservation practices. Of particular importance in this volume are progress reports on treatments with mixtures of creosote and petroleum and of zinc chloride and petroleum, including detailed reports of mixture-treated ties on the Santa Fe, Northern Pacific and Southern Pacific. Of special interest to railway officers are service records of treated ties made on special test tracks on the Atchison, Topeka & Santa Fe, the Baltimore & Ohio, the Chicago, Burlington & Quincy, the Chicago, Milwaukee & St. Paul and the Union Pacific. This edition also contains the final draft of a number of specifications approved by the association including those for the preservative treatment by pressure processes of timbers and ties, except Douglas fir, larch or tamarack. As in previous years the proceedings cover reports and papers on many of the technical problems of the industry as well as a section devoted to statistical data, although the usual compilation of the quantities of wood treated and preservatives used has been omitted, not being available at time of publication.

Letters to the Editor

[The RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

The Shipper's Interest in Depreciation

CHICAGO.

TO THE EDITOR:

A letter entitled "The Shipper's Interest in Depreciation," which was published on page five of the *Railway Age* of July 5, brings to mind an important fact frequently overlooked in discussing this question, which is that charges to depreciation do not in the final analysis affect the aggregate charges to operating expenses, but merely affect the time of making the charge for replacement. When a depreciation reserve is set up the replacement charge is made periodically during the life of the property which is being worn out, prior to the maturity of the replacement, whereas in the case of no depreciation reserve the replacement charge is made at maturity. It is, therefore, evident that charges to depreciation, so called, do not in the long run affect the aggregate amount of operating expenses, but merely the time of making the charge for replacement. If this fact were more clearly understood, it would help to clarify the situation with regard to depreciation.

R. T. SCHOLES,
Assistant to Chief Engineer, Chicago, Burlington & Quincy.

The La Follette Platform of Pet Prejudices

IN THE BLUE RIDGE MOUNTAINS, VA.

TO THE EDITOR:

The La Follette propaganda for government ownership of railroads deserves more attention of the sort exemplified in your editorial comment of July 12. The La Follette program makes a very powerful appeal to the type of farmer who is swayed by class prejudices, and unfortunately there are many of that type. To them private property is not sacred unless it is farm property.

A method is provided in the La Follette platform by which the apparently paradoxical result of increased wages and decreased rates can actually be achieved, at least for a time, and this method is one that will be quickly appreciated by those susceptible to demagogic argument. The radical platform opens the way for: (1) domination of the Supreme Court by Congress, thus removing the chief obstacle to confiscation of private property; (2) government ownership of the railroads through confiscation based on arbitrary and inadequate "valuations"; (3) increase in revenues available for labor by elimination of taxes and dividends and reduction of interest charges; (4) decrease in rates, especially on farm products, by basing charges on the "valuations" made for purposes of confiscation; and (5) payment of deficits from funds derived from taxation of excess profits and large incomes.

It is not necessary here to consider the economic or political features of the procedure just outlined, but it is proper, perhaps, to point out the unfortunate fact that this very program cleverly embodies the pet prejudices of a large number of dissatisfied people. They regard the Supreme Court as a creature of Big Business, and ardently desire to make it subject to the whims of Congress; they regard the railroads as the outrageously overcapitalized property of Wall Street; they attribute all the misfortunes of the farmers to the evil and selfish practices of the Money Trust; they wring their hands over the sad plight of poor, downtrodden, slave-driven labor unions; and they applaud to the echo any scheme of taxation that promises to make the bloated rich pay for all the economic experiments that the great common people want to try out.

By such people facts are flaunted and reasons ridiculed. A campaign of education to overcome such carefully nurtured prejudices is a man-sized job, and your efforts to get it started deserve the gratitude of all who are concerned for the security of their property, whether or not they are directly interested in the railroads. Success in such an undertaking should come easiest through an appeal to the emotions rather than to the intelligence of those who must be reached.

XERXES WITHERSPOON.

Spending the Money

PHILADELPHIA, Pa.

TO THE EDITOR:

A careful perusal of the communication from G. Charles Hoey entitled "Wanted—An Engineer," which appeared in your issue of July 19, must, of necessity, refer to purchasing agents of a past decade and not to the modern executives in charge of the spending of the millions disbursed annually by the railroads for materials and supplies. The man today entrusted with the purchasing of his railroad's needs must be more than an engineer. He must be of irreproachable character, a student of economics, and well grounded in the fundamental requirements of good common sense.

The biggest job of the purchasing agent today is to try to get a real dollar's worth of material for the dollar of his company's money which he spends. The day has long since passed when first-cost buying was in vogue. Today's purchasing agent is an ultimate cost buyer.

Purchasing officers recognize their dependence on the mechanical department as to the relative merits of certain materials and only through the proper co-operation between these departments can economical purchasing be accomplished. However, they also know the characteristic preference for certain manufacturers' products on the part of many engineers, and how free they are to express it. Give the manufacturer the knowledge that his product is specified and the purchasing agent has lost half of his chances of getting the lowest obtainable price at the time of purchase.

The purchasing agent of today may not be technically trained as an engineer, but if you believe they are still first cost buyers, you want to come out of the woods and meet the modern product on the Class I roads today.

W. A. C.

Positive Meet Positively N. G.

SAN FRANCISCO, Cal.

TO THE EDITOR:

The article by "Professor" in the *Railway Age* of July 12, page 50, concerning the positive meet is a queer combination of fact, fallacy and fancy, which deserves a word of comment.

A few days ago a boomer brakeman said to me, "Say, Cap, I don't think much of your new book of rules; it does not say which extra must take siding when they are given orders

to meet each other. They have no class, you know." It was explained to him that, to the best of my knowledge, for at least 25 years, this matter had been cared for in Rule 88.

By way of a further illustration that a little learning is a dangerous thing and that sometimes it is best to look beyond one's home town, I will relate what happened to one of my uncles about 40 years ago: Upon awakening one late spring morning he discovered that there had been an exceptionally heavy frost. Assuming that it was general and that the oat crop was ruined, he rushed a telegram to his Board of Trade firm in Chicago to buy several hundred thousand bushels of oats. The frost proved to be only local. His lack of knowledge of its extent caused his financial ruin.

Evidently "Professor" is familiar only with a limited amount of railroad territory where probably there are a great many open offices, where practically all business is handled in regular trains and where trains run on time at least 75 per cent of the time. Were he to cross the Missouri River he would find a very different state of affairs. While passenger trains in the west run with some degree of regularity, I doubt if the positive meet could be used successfully to handle even this class of trains. As for the freight business, about one-fourth of it is moved by regular freights—the rest is cared for by running extra trains. Should a regular freight train ever get on time, or report ready to leave its initial station on time, it is likely the dispatcher would run it extra, to relieve the train of the necessity of waiting at stations for time; holding the schedule open to be used by some other freight crew later. With open offices about 50 miles apart, as is true on many western railroads, the proposed scheme could not be made use of at all.

I agree with the Professor" that some one is benighted. but it is not the train dispatcher or the officer who has discovered ways in which traffic can be moved expeditiously under the "Right and Wait" method of practice, with very little delay to any train, and without misunderstanding or accident.

HARRY W. FORMAN.

No Set Rule for Charging Depreciation

ST. LOUIS, MO.

TO THE EDITOR:

I have been interested in the letters appearing in your recent issues discussing the contention of some carriers that "there is no depreciation in railroad property so long as it is well maintained" and the Interstate Commerce Commission's statement that the question of charging depreciation is of no importance. The theory of not providing for depreciation in current expenses would work a distinct hardship on some carriers and no ironclad rule should be laid down applicable to all.

The case I have in mind is a small property whose principal value is a double track steel bridge; the total value of the property is $1,500,000, of which $1,200,000 is in the bridge. Renewals to a property of this nature can only be made economically in major units, and if no depreciation is accrued on such units, it would seriously distort net income.

For example, recently the renewal of one unit cost $100,000, equal to the net railway operating income (before interest) in any one year. With no reserve accrued through depreciation, no income would be available in that year to pay the company's actual interest on bonds of $60,000, while in previous years the company with $100,000 net railway operating income would have paid the government $5,000 under the recapture provisions of the Transportation Act. Therefore, should major renewals be required a few years in succession, it might result in receivership, income of previous years having been dissipated through the recapture account not properly accounting for the hidden expense of the income produced.

Furthermore, experience teaches that present-day structures are obsolete within 50 years or less because of increases in the weight of power and general progress. Regardless of the fact that such a property had been well maintained, its value for financing purposes at the end of 50 years—assuming that the changed conditions obtain—will be greatly impaired, thereby defeating the very purpose of the Transportation Act to provide the public with an adequate transportation system that could be properly financed through the public.

It is, therefore, only reasonable to include depreciation to provide for both deterioration and obsolescence in current charges to the public (who are enjoying the benefit of such structures) in order to be fair to security holders and to posterity as well. A national policy of avoiding a burden justly our own and shunting it to a future generation will result in our offspring inheriting obsolete tools of commerce, burdened with charges, with which to compete in world markets, and cannot be defended.

A SHORT LINE AUDITOR.

Waterway Conditions Sometimes Change

CHICAGO.

TO THE EDITOR:

The editorial on waterways in the *Railway Age* of June 28 referred to the importance of considering the silting up of bridge openings. This is a matter which could hardly have been anticipated at the time of construction of many railroads. We have a number of situations, principally along the Missouri river, where the bottom land is filling up rapidly and the effective opening of our bridges is being reduced. This condition, which is encountered to a smaller degree in many other valleys, is due to two causes: First, the filling up of the bottom land and, second, the changing of the point of discharge of the stream.

In the first case unless the track is raised as rapidly as the silting takes place and the flood plane of the valley rises the level of the adjacent ground is raised until it is the same as the top of the railroad embankment in many cases. In some instances this silting will take place on the upstream side of the embankment while the original height of the fill will be maintained on the downstream side. The usual solution of this problem is to raise the grade. Where this condition is apparent it may be advisable to put in temporary structures, or permanent structures which can be easily raised.

To illustrate the second cause, we have many openings along the Missouri and other rivers which were at one time effective due to the fact that the discharge point of the stream was only a short distance below our structure and a good fall was obtained. Where the main river has moved away to the other side of the valley, leaving a mile or more of flat land between our track and the river, the opening has filled up due to silting. The reverse of this process is also encountered occasionally. In the case of some openings which were constructed while the main river was at some distance from the track the river later cut a channel close to the track, causing scour to such a depth that it became necessary to underpin foundations and build extensive protection work. The foundations in such cases may well be designed for maximum depth of scour if there is a possibility of a change in the discharge point.

G. A. HAGGANDER,
Bridge Engineer, Chicago, Burlington & Quincy.

Concrete Flumes Solve Tunnel Drainage Problem

Precast Construction Proves Effective in Overcoming Difficult Situation in Stampede Pass

By M. F. Clements
Bridge Engineer, Northern Pacific

BY THE INTRODUCTION of a system of concrete flumes cast at a concrete plant and set into place on each side of the track, the Northern Pacific has solved an unusually difficult drainage problem in the Stampede tunnel at its crossing of the Cascade range in western Washington. The presence of water in the tunnel together with a certain rock formation encountered in a portion of its length had been

Excavating on the Site of the Flume

a source of trouble from the time of construction in 1887. For this reason the history of this tunnel and an account of the various measures taken from time to time to overcome the difficulties have an important bearing on the adoption of the concrete flumes as the final solution.

The Northern Pacific was built into Pasco, Washington territory, in 1880 and was constructed west from Kennewick in 1881. At the same time, the line was being constructed east from Tacoma. The Naches and Yakima river valleys from the east and the Green River valley from the west had been selected for the approach to the Cascade mountains and Stampede pass, formerly known as Garfield pass, was selected as the point of crossing. The first crossing of the summit was effected by a switch back line since the permanent line required the driving of a single track tunnel 9834 ft. long now known as the Stampede tunnel.

Tunnel Started in 1886

Work was started at the east heading on February 13, 1886, and at the west heading on April 1, 1886. The track did not reach the tunnel until 1887 and all equipment and material had to be hauled on newly made roads for a distance of 50 miles. In the *Railway Age* of December 16, 1887, Nelson Bennett, the contractor, presented information in regard to the material encountered from which the following is quoted:

"Both ends of this tunnel are working in a volcanic formation, the strata lying nearly flat, with perhaps a five-degree incline from east to west, thus making it necessary to place permanent timbers close in the heading by means of wall plates, the rock not being sufficiently strong to sustain itself in the roof of the tunnel. Having to work the strata endwise, it requires powerful explosives to remove the rock, so that "shoring" or temporary timbering is quite impossible. It will, therefore, be seen that the placing of the permanent timbers requires the greatest care and necessitates compact packing and wedging to bring an even and continuous bearing upon each segment. While the timbering is being done, either on the bench or at the breast, the muckers must leave that part of the work. This involves a delay of about one-fourth of the time for purposes of timbering. Then again, the precaution necessary in shooting the rock so that the timbering is not jarred or knocked out of place requires shorter holes and consequently more of them."

The entire tunnel required timbering throughout except for a length of 533 ft. It was completely holed through on May 10, 1888, 28 months having been consumed in the driving.

Very little water was encountered during the driving, only one leak of any volume being struck in the roof about 2,000

A Section of the Completed Flume with the Covers Removed

ft. from the east portal. The greatest difficulty experienced was in connection with swelling ground at certain places where clay was encountered. This is not a clay in its natural bed. It has the appearance of a soft pumice stone, pale green in color and, when first exposed, is fairly hard. It cannot be dug with a pick but is easily chipped out with air cutting chisels. Exposure to air and water softens the material and it takes on the puddling qualities of clay.

During the construction of the tunnel, water was encountered 5,000 ft. from the east end along the north side, slightly above the springing line. The material swelled to such an

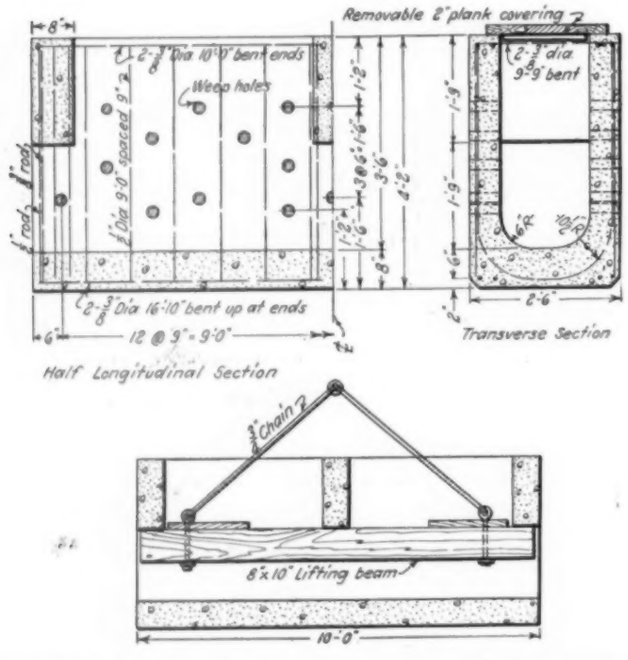
extent that it was impossible to hold the section with timber. Within six weeks after the headings met, the timbers had been replaced three times, while wall plates made of 12 by 12-in. timber were crushed to a thickness of 4 in. and were rolled out of position.

It became necessary at once to replace the timber with masonry over a distance of 60 ft. on each side of the tunnel. These walls were seven feet at the base and three feet at the springing line. The water was piped through the wall and carried in iron pipes beyond the swelling ground before it was permitted to empty into the ditch. After the completion of the tunnel, the ground continued to swell, raising the track a maximum of 18 in. and making it necessary to remove the material and lower the track.

In 1895 the swelling ground had crushed a portion of the permanent lining, making it necessary to replace that portion with heavier walls, some of which measure 12 ft. in thickness at the base. In 1897 this same condition required the renewal of 262 lin. ft. of side walls and 200 lin. ft. of brick arch. In 1901, 144 lin. ft. of side wall was reconstructed, using a heavier section and 63 lin. ft. of wall was underpinned and reinforced by a heavier foundation.

Serious Problems Presented

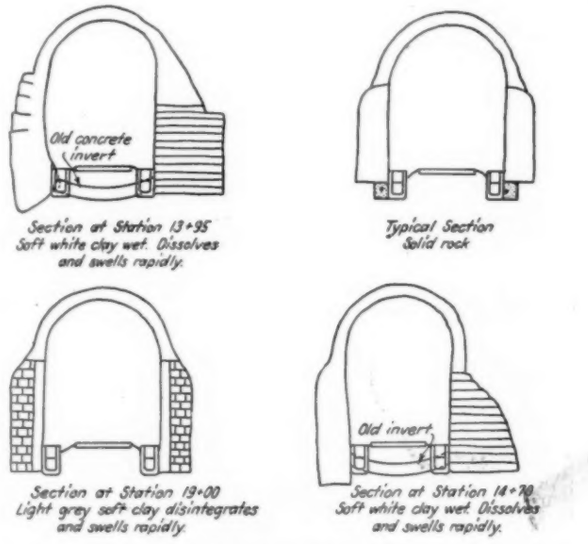
The soft material penetrated by the tunnel presented two serious but separate problems to the management—the maintenance of the tunnel as a matter of safety to the tunnel itself and the maintenance of the track surface in a condition for the safe operation of trains. The work performed subse-



Details of the Flume Sections and Manner of Handling Them

quent to the first construction of the tunnel was primarily to maintain the tunnel, but in the reconstruction of the side walls due consideration was given to the maintenance of the track. The construction of an invert was proposed and portions of the side walls were constructed to provide for the placing of an invert, although its construction was not carried out in every case. In 1901 a section of invert 106 ft. long was constructed near the summit of the tunnel which is one mile from the east portal. This proved satisfactory and no further trouble developed at that particular location, but the invert was expensive and no additional sections were built until 1914.

By 1908 conditions in the tunnel had reached a critical stage. The side ditches were filled with an accumulation of mud and water and the track was in such condition that derailments were a source of frequent delays to operation and excessive costs of maintenance. The swelling of the ground was far less marked than in the early days of operation which indicated that a point of saturation and equilibrium had been reached but the material beneath the track was very unstable. In order to correct the conditions the ballast was removed, the side ditches cleaned and approximately 2,200 ft. of four-in. and 3,675 ft. of six-inch sewer tile was place on either



Typical Sections of the Tunnel in Soft Ground, Showing the Position of the Flumes

side of the track. These, no doubt, served their purpose for a time but they soon became filled with silt and were of no value.

In 1914 a concrete invert 275 ft. long was placed about 2,000 ft. from the east portal. The ground was soft and badly puddled with the ballast, leading to very poor track conditions. In 1920 the condition of the track in the tunnel was such that it became necessary to provide some measures for permanent relief. The roadbed was soft above the invert near the east end, due in part to the presence of the invert placed in 1913 which acted as a dam, holding back the water and causing saturation of the subgrade.

After considerable study, it was decided that the trouble was due primarily to the presence of water without adequate drainage. The inverts had been constructed with the low point at the center of the track and small trenches adjacent to the side walls. By placing stone ballast on the invert, fairly good track could be maintained, but the ballast was saturated at all times. The cost of placing inverts was excessive and it was desirable to extend the repairs to the track over the whole of the east ascent in the tunnel, using a method which could be placed at less cost than that of the invert.

Decide to Build Concrete Flumes

It was finally decided to construct permanent side ditches of concrete which would be open at the top for inspection and which would provide a flow line for the water at an elevation below the bottom of the ballast. To accomplish this, one mile of precast concrete flume was constructed along each side of the track, connecting outside of the east portal with a closed pipe drain extending to a point clear of any snow slides and emptying the water into a deep gulch which could not be clogged at the outlet. The flume sections were 18 by

42 in. inside measurements, and were cast in sections 10 ft. long. The side adjacent to the track was perforated with two-inch holes through which the water could pass from the ballast and subgrade into the flume. The flume was accurately placed on a 0.2 per cent gradient to avoid any depressions and pockets in which sediment would deposit. The top of the flume was covered with a plank walk of two-inch D. & M. material built in removable sections 2½ ft. wide and 10 ft. long. This provided a continuous walk for trainmen in the tunnel and also gave access to the flume for inspection and cleaning.

The excavation for the flumes was made in solid rock and at the location of the inverts the solid concrete was cut away. At the location of the soft rock which had caused difficulty during the construction and maintenance of the tunnel, underpinning of concrete about two feet in thickness was placed in advance of the flumes and the space between was grouted after the flumes were set. During the excavation for the flumes, the tile drain placed in 1908 was removed and it was found to be entirely closed with mud.

The flume sections were provided with diaphragms above the water section to serve in conjunction with concrete struts placed between the flume sections on either side of the track as a means of resisting any inward movement of the side walls. During the construction of the drainage system 15 of these struts were placed over a distance of 200 ft.

With the exception of a short period at the beginning of the work, the entire construction was carried on by contract. Train operation through the tunnel is protected by the staff system of absolute block and the freight train schedule was rearranged so as to enable the contractor to have the staff for as much of the time as possible. The average working day during the construction period was 6½ hours.

Plant at the East Portal

All of the work was handled from the east end of the tunnel, where a compressor plant, shops, camp, etc., were provided. Drilling was done with air drills of the jack-hammer type and the soft material was broken up with paving breakers. The muck was shoveled by hand onto section push cars which were coupled together in trains and handled by a gasoline dinky. A natural dump existed beyond the east end of the tunnel where all waste material was deposited.

The flume sections were precast at a concrete plant operated by the railway company at Auburn, Wash., 60 miles west of the tunnel, where they were loaded on cars and shipped to the tunnel as required. A total of 968 flume sections was placed. The flumes were placed by means of a locomotive crane which removed the sections from a car and lowered them into position. On the completion of the drainage system the ballast in the tunnel was renewed and the track lowered approximately 18 in. and resurfaced on washed gravel ballast.

The drainage system has now been in service two years and it has given excellent results. The water in the flume carries the sediment in suspension with no deposit and there has been no occasion to clean it. If this becomes necessary at any time, the deposit can be removed by sluicing and, if necessary, a permanent system of water piping can be installed for this purpose from a natural supply near at hand.

The work was done by Winston Brothers Company of Minneapolis. The time required for construction was seven months.

Winking Signals Facilitate Yard Switching

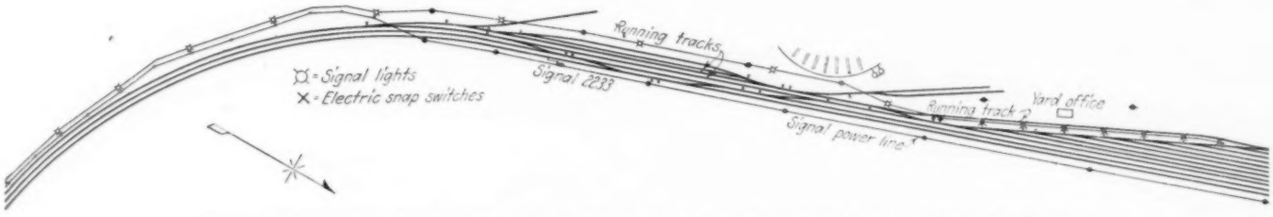
By M. G. McInerney

Superintendent, Buffalo, Rochester & Pittsburgh, Rochester, N. Y.

A ROW OF ELECTRIC LIGHTS located on every second pole along the switching lead and controlled by snap switches by the switchmen are being used successfully as a means of giving switching signals to the enginemen for both day and night service at several yards on the Buffalo, Rochester & Pittsburgh. The following signaling code is used for this signaling:

1 long flash	Stop
2 long flashes	Go-ahead
2 short flashes	Kick-ahead
3 long flashes	Back-up
3 short flashes	Kick-back
4 short flashes	Steady

The system of winking signals is used on flat switching and has filled a long felt want, especially in stormy or foggy weather and on curves where it is difficult to pass hand signals. Aside from the more satisfactory results, these signals eliminate the services of one man formerly required to pass the hand signals on to the engineman. The track layout and the location of special winking light signals and controlling switches at Rickers, Pa., are shown in the accompanying plan. Electric lights are mounted on every second pole of the telegraph pole line for a sufficient distance to cover the space in which a switch engine ordinarily works, which may be from 30 to 70 car lengths. The lights at Rickers are distributed for a distance of about 3,000 ft.



Plan of the Yard at Rickers, Pa., Showing Location of Signal Lights and Snap Switches

The lights are mounted on the pole line, either under the cross-arm or on a bracket made of bent pipe fastened to the pole. The lamp is not provided with a shade but is constructed so as to be weatherproof. The size of the lamp used depends on local conditions, ordinarily a 25-watt lamp is satisfactory, but in case the view of any lamp is directly against the sun a larger lamp is required in order to transmit the daylight indication.

Control Circuits and Switching

The lights are all flashed simultaneously and may be controlled by any one of the snap switches which are located near each of the yard switches. Where the pole line is close enough the switch is mounted on the pole up close to the cross-arm so that no conduit is required. A length of bell cord extends from the switch down to a pulley on the pole which is mounted at a height for convenient use. The switchman pulls on the end of the cord to operate the switch.

Where the pole is too far from the track the snap switch is mounted on a short pole set near the switch.

The cost of an installation depends on whether a pole line is available or whether one has to be built; whether it is necessary to lay conduit under tracks to the switches, etc. The installation shown on the drawing, in which there are 8 switches and 11 lights, cost approximately $875.

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING showed a considerable increase during the week ended July 19 as compared with the previous week, due to increases in the loading of grain and grain products, forest products and livestock, although the total, 930,284 cars, was still below the figures reached earlier in the year. This was a decrease as compared with the corresponding week of last year of 99,145 cars and an increase as compared with 1922 of 84,736 cars. The Southwestern was the only district that showed an increase as compared with last year but there were slight increases in grain and grain products and livestock. The summary as compiled by the Car Service Division of the American Railway Association is as follows:

REVENUE FREIGHT CAR LOADING

Week Ended July 19, 1924

Districts	1924	1923	1922
Eastern	219,064	248,261	198,254
Allegheny	187,957	228,079	169,874
Pocahontas	42,584	43,240	26,023
Southern	127,280	129,601	113,584
Northwestern	144,244	170,270	154,020
Central Western	143,981	147,929	128,650
Southwestern	65,174	62,049	55,143
Commodities			
Grain and Grain Products	47,628	46,270	57,187
Livestock	32,074	31,899	27,381
Coal	145,986	190,826	72,420
Coke	7,011	14,888	9,938
Forest Products	64,410	75,823	58,161
Ore	57,916	84,370	64,739
Mdse., l. c. l.	236,956	240,523	237,854
Miscellaneous	338,330	344,830	317,868
Total	930,284	1,029,429	845,548
July 12	910,415	1,019,809	850,676
July 5	759,942	850,082	707,025
June 28	908,355	1,021,471	862,845
June 21	903,700	1,004,982	866,321
Cumulative total, January 1 to date	25,787,348	26,904,822	22,423,516

The freight car surplus for the week ended July 14 was 355,720 cars, a decrease of 3,471 cars as compared with the week before. This included 169,697 coal cars and 146,620 box cars.

For the Canadian roads the surplus was 23,950, including 21,125 box cars and 200 coal cars.

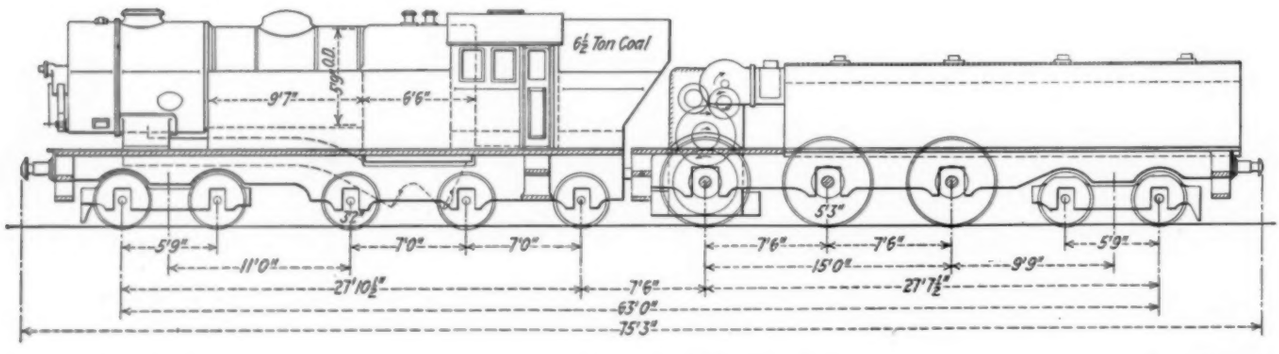
Car Loading in Canada

Revenue car loadings in Canada for the week ended July 19 totalled 51,222 cars, a decrease of 1,928 cars from the previous week. The falling off in the East was 1,119 cars, while the decrease in the west was 809 cars. As compared with the same week last year loadings showed an increase of 709 cars, of which 193 were in the East and 516 in the West. The cumulative totals up to July 19 are 1,555,149 cars for 1924 compared with 1,438,661 cars for 1923.

Car loadings by commodities, for the week ended March 15 and for the previous week this year are as follows respectively:

Total for Canada

Commodity	For the week ended 1924 July 5 Cars	July 12 Cars	July 19 Cars
Grain and grain products	6,796	5,839	4,936
Live stock	1,740	2,053	2,000
Coal	4,529	5,029	4,793
Coke	181	278	230
Lumber	3,577	3,864	4,036
Pulpwood	1,869	2,007	1,798
Pulp and paper	1,415	1,790	1,666
Other forest products	2,200	2,503	2,357
Ore	1,605	1,441	1,516
Merchandise l. c. l.	13,668	16,070	15,378
Miscellaneous	11,366	12,576	12,812
Total cars loaded	48,946	53,450	51,522
Total cars received from connections	28,981	25,241	28,394
Total cars loaded for corresponding week, 1923	48,595	51,997	50,813



Weight on front truck	60,480 lb.	Total heating surface	2,420 sq. ft.
Weight on forward rigid wheel base	89,040 lb.	Grate area	35 sq. ft.
Weight on drivers	126,560 lb.	Heating surface of a preheater	14,500 sq. ft.
Weight on rear truck	42,560 lb.	Condenser cooling surface	13,500 sq. ft.
Total weight in working order	318,640 lb.	Maximum rating at the rail	2,000 hp.
Tube heating surface	1,660 sq. ft.	Tractive effort	38,000 lb.
Firebox heating surface	145 sq. ft.	Factor of adhesion	3.33
Superheater heating surface	615 sq. ft.	Maximum speed, approximately	70 m.p.h.

Ljungstrom Turbo-Locomotive Being Built by Beyer, Peacock & Company, Manchester, England, for Passenger Service Between London and Glasgow Without Change

Some Details of the Train-Control Problem

Opinion of Commissioner McManamy, Filed with Report of July 18; Abridged—Needs of Individual Roads Considered

WHILE I AM IN ACCORD with the majority report, I desire to correct any possible misapprehension that may result from the dissenting interpretation of that report. I was not a member of the commission at the time the first order was approved. It is, therefore, proper for me at this time to express my individual views on the entire subject. * * *

In confining our order to train-stop and train-control devices, we have given no consideration to the need for extension of automatic block signal systems, disregarding the fact that section 26 applies with equal force to that device. Railroad men unanimously advocate the extension of the block signal system. They also as a unit admit the need of a suitable train-stop on certain divisions where traffic density is greater and perhaps operating conditions more difficult. The majority of them do not oppose the installation of automatic train-control devices upon sections of road where the traffic density is greatest and operating conditions most difficult, provided it is shown that such devices have been developed to a reliable point. Clearly, Congress contemplated that each case should be investigated and that the particular safety device which we order installed would be the one needed to furnish adequate protection under the operating conditions existing on that particular road or division. * * * Our safety reports show that only 34 out of 172 collisions investigated were due to failure to observe signals. Surely on this showing we are not justified in wholly disregarding the lack of block signals on 50 per cent of the mileage of the country, and confining our attention entirely to train-control or train-stop devices. Installation of train-control might be proper in one case and unreasonable in another because of differences in speed of trains, the density of traffic, financial condition, etc. The installation of automatic block signals on certain divisions of light or medium traffic density would be sufficient. The installation of automatic stops with the permissive feature at certain locations would undoubtedly meet the needs for many years. The installation of train-control, developed to the point of reliability and practicability, should without doubt be required as an additional safeguard on the busiest passenger divisions.

The Western Maryland will illustrate my point. Under our order automatic train-control or train-stop must be installed on a passenger engine division. This carrier has selected for the installation the section from Thomas, W. Va., to Elkins, over which four passenger trains are operated daily, two in each direction, at an average speed of 21.6 miles per hour. Its freight traffic consists almost entirely of coal, a slow-moving commodity. That such conditions justify an expenditure of from $2,500 to $4,000 per mile for train-control is not conceivable. This line is not at present equipped with block signals, which would furnish adequate protection.

The cause of safety will be better served by a more careful investigation of the actual needs of the different carriers. Much of the evidence in this case is conflicting. The train-control people urge that their devices are performing satisfactorily, but few of the train-control people have had extensive practical operating experience, and this question in its present stage is, after all, primarily an operating matter.

The carriers contend that the train-control art is as yet in an experimental stage; the report properly finds that it is beyond that stage. The record shows, however, that the devices have at least not passed the development stage and that, therefore, there is a probability of a waste of large sums of money. The dogmatic statement that train-stop or train-control has been developed to a point where it is practicable for general use does not make it so. We must not overlook the fact that the ultimate cost of train control installations will be very great, and that it will all represent a capital charge on which, under secion 15a, standard return must be paid, and this represents a burden on the transportation of the country which should not be required unless it can be fully justified. Our orders now require the expenditure of many millions of dollars with greatly increased maintenance costs, and much of this work eventually will be scrapped. The New York Central is equipping four different divisions with three distinct types. This road would not make an expenditure on three separate devices if it were not convinced that the development period has not yet come to an end. The cost of other safety appliances required by federal laws, such as safety appliances on freight-train cars and on locomotives, are insignificant as compared with what will be the ultimate cost of installing train-control at prices ranging from $2,000 to $5,000 per mile of track.

When we consider the tremendous expenditure involved and the development work yet to be done, the time provided in the original order is to my mind clearly inadequate and is out of line with our action in similar cases. For instance, for the application of safety appliances under our order of March 13, 1911, there were six extensions of time, making a total period of eight years and eight months to meet the requirements of our order, yet the total cost represented but a fraction of what is here involved. The same is true with respect to structural changes in locomotives required by our order of June 2, 1911. For these reasons I favor a more liberal policy in the matter of time to meet our requirements.

Comments on Commissioner Esch's Views

Clearly the testimony at the second hearing abundantly supports the use of the permissive feature and amply warrants the reversal of our former finding in that respect. Our Bureau of Safety had been intensively studying the question of automatic train-stop for 18 years. It favored the permissive feature. During federal control, the committee representing the Railroad Administration, after exhaustive study, also favored the use of the permissive feature. At the first hearing, representatives of the railroads favored the use of the permissive feature, while certain representatives of train-control devices opposed it. The train-control people, however, were not unanimous either at the first or second hearing against it.

A check of all of our accident investigation reports will not show a single case where the use of the permissive feature has caused a train collision. The first actual service installation of automatic train-stop was on the Chicago & Eastern Illinois in 1914, where it has been in use continuously since that time. This device has the permissive feature and not a single accident of any kind has been attributed to its use. On the Chesapeake & Ohio a train-stop device, including the permissive feature, has been in service since 1917. The permissive feature has been found essential in order to avoid the stopping of trains in tunnels, cuts, on bridges, or other places, where it would be dangerous, if not impossible, for the engineman to get down and manually release the device. On the Chicago, Rock Island & Pacific a train-control device has been in serv-

ice since 1920. Our reports do not indicate any better results in the way of safety from this installation than from the others.

Failure to obey signal indications that are seen and understood is rare. The permissive feature would not interfere with the performance of train-stops when the engineman fails to observe or understand the signals. It would still enforce the stopping for unknown dangers. It would only permit him to forestall the stop and use his judgment in proceeding under the rules when he has been warned of an existing danger.

There is abundant evidence that the train-stop system without the permissive feature is unsafe to control trains on grades, particularly freight trains, and that even a train-control device of the most improved type may prove to be unsafe, due to the fact that the control of heavy trains on grades is an extremely difficult task, requiring the utmost skill. There are frequently occasions where an application of the brakes by a train-stop or train-control device would waste air and delay recharging to an extent that might cause a runaway. If we are to have satisfactory mountain braking it must be done by the engineman. It cannot be done in part by the engineman and in part by an automatic control which would, under certain circumstances, make a brake application not desired by the engineman and not under his control. Any attempt at such dual control of heavy freight trains on grades invites disaster.

The argument against the permissive feature is that it permits to enter into the device the human element which the train-control was designed to prevent. But the human element is not eliminated. These devices are made by men, cared for by men, and operated by men, therefore the human element still remains.

The dissenting opinion states that our offer to co-operate with the carriers in further tests will result in procrastination and delay; but the majority report simply states that we are willing to co-operate to the extent of our ability. It is our duty to continue to aid in investigation in the interest of the desirable standardization of devices. We specifically state that this offer will not be permitted to serve as an excuse for delay in the installations required by our orders. * * * In the interest of economy, if for no other reason, the carriers should be kept informed at all times as to what devices would, or would not, meet with our approval so that unnecessary expenditure would not be made in installing devices that might be finally disapproved.

The belief is expressed in the dissent that the modification of the order as to permissive control may automatically give the carriers two years additional time. In my opinion, there is no legal basis for an extension of time because of this modification.

The dissenting opinion would have us criticize the carriers for not proceeding to install the simpler types of devices which we have approved instead of experimenting further with more complicated and more costly types. * * * Interference with operation by decreasing track capacity on congested railroads is a serious matter. Almost all the carriers claim that the intermittent contact type of device is not correct in principle and that other types, which function by non-contact, will receive greater development in the future. Their greatest objection to the contact type of device is that the impact shocks between the train and roadside apparatus are severe, and that there is constant possibility of damage to the roadside apparatus by brake beams or other parts of the train that may be dragging. The continuous devices are designed to give an immediate indication on the train of any change in operating conditions so that the engineman will not have to wait until he approaches the end of the block to accelerate his speed. This, the carriers contend, will go far towards the elimination of the objection that the devices now reduce track capacity in congested areas.

Under such conditions we should not even by inference criticize the carriers for their failure to install a particular type of device. The device should be selected on its merits, with due regard for the conditions under which it must function, and the responsibility for its selection, installation and performance should rest initially with the carriers. Our interest should be concentrated upon results.

Report on Collision at Lakeview, N. C.

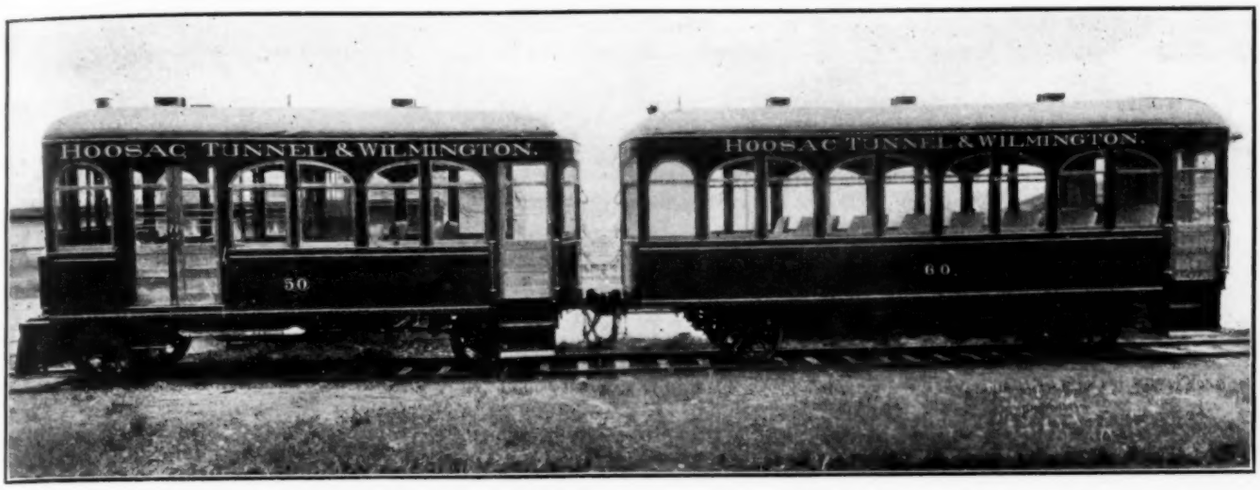
IN A REAR COLLISION which occurred on the Seaboard Air Line near Lakeview, N. C., on May 21, two camp cars in the leading train were totally demolished (although all other vehicles in the train suffered little damage); and one laborer, riding in one of the camp cars, was killed and another employee was injured.

A northbound local freight train, consisting of a locomotive, 42 cars and a caboose, standing at the station (a non-telegraph station), where it had been detained about 45 minutes, was run into at the rear by a following freight, No. 72, first section, consisting of a locomotive, 49 cars and a caboose. The moving train was not running very fast but the collision resulted in the damage stated. The caboose of the standing train had a steel underframe but the camp cars were of wooden construction, built 25 years ago.

W. P. Borland, chief of the Bureau of Safety, Interstate Commerce Commission, reporting on this collision, finds that it was due to careless running under a permissive block signal. Engineman Howie, of first No. 72, had received a permissive card directing him to run from Southern Pines to Vass, eight miles, on "permissive block," but he ran with speed not under control on a descending grade of one per cent, over curves of three degrees, and at other places where the view ahead was short. The rules of the Seaboard Air Line governing the use of "permissive block" under the manual block system require "engineman and conductors to handle trains with great caution; where view is obscured, speed must be reduced to insure against collision." The inspector finds also that the flagman of the standing train ought to have used better judgment; he ought to have gone a little farther so as to make his flag visible on a long tangent where, says the report, "he would have been seen by Engineman Howie in ample time. * * *"

In his conclusion the inspector says that the investigation disclosed the need of a more strict enforcement of the rules. In this he refers to the rule requiring the condition of air brakes to be thoroughly understood before a train begins its trip. This rule has been regularly neglected and "when the officials of a railroad do not enforce the rules, it is not to be expected that the employees will render that obedience which should be required." Continuing, the report says, "Had an automatic block signal system been in use and had its indications been obeyed this accident would not have occurred. * * * This is also a type of accident which would have been prevented by an adequate system of automatic train control.* * *"

THE WARRIOR RIVER LINE of the Mississippi-Warrior Service, the barge line operated by the government on the Mississippi and Warrior rivers, will be operated independently of the Mississippi section under the new Dennison bill. Headquarters of the Warrior line will be in Mobile, Ala., in charge of Captain E. V. Pickley. Under the Dennison bill, the Mississippi-Warrior Service has been given the name of the Inland Waterways Corporation, of which Theodore Brent, federal manager of the old system, will be traffic manager.



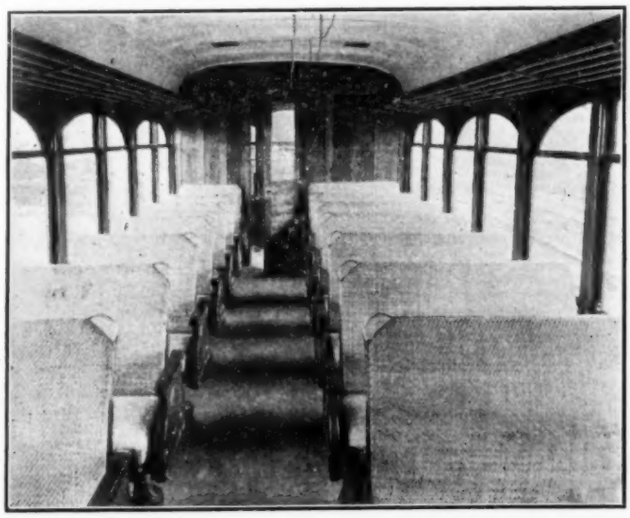
Type of Motor Tractor and Trailer Which Replaced Steam Locomotives

Motor Car Service on Heavy Grade Road

The Change from Steam to Gasoline Propelled Equipment Has Reduced the Cost of Operation

By John Collins Ower

THE HOOSAC TUNNEL AND WILMINGTON RAILROAD placed in service in June, 1923, its first units of gasoline propelled equipment for passenger service. This equipment, which was manufactured by the Four-Wheel Drive Auto Company, Clintonville, Wis., consists of a tractor and one trailer train, designed particularly to meet the operating conditions of that road.



Interior View of Trailer Coach, Showing Seating Arrangement

The Hoosac Tunnel and Wilmington Railroad operates a 24-mile line in the Green Mountain region of the states of Vermont and Massachusetts. The road connects with the Boston & Maine at Hoosac Tunnel station at the easterly base of Hoosac Mountain and runs northward to Wilmington, Vt. The northbound trip is an almost continuous ascent; Wilmington being at an elevation of 814 feet above the level of Hoosac Tunnel. Some of the gradients are very severe; the maximum, for about half a mile, being five per cent; but there is one four per cent grade of almost two miles. The road also has numerous sharp curves, the maximum on the main line being 18 degrees.

In addition to these adverse physical characteristics, the Hoosac Tunnel and Wilmington has to meet extremely severe winter conditions.

The road traverses a "Winter Sport" section of New England; snow falls early and often remains until April; heavy storms are frequent and temperatures of 30 deg. below zero are so common that they do not occasion particular comment.

The prime object which prompted the management to purchase gasoline propelled equipment was the necessity of replacing some of its regular passenger coaches. Faced with the necessity of making a large capital expenditure it was decided to investigate the possibilities of gasoline equipment with a view of reducing operating costs, and several makes of gasoline cars were given careful study. It was decided that the desired type of motor must be able to operate continuously at maximum speed without excessive heating, this being more than usually necessary on the Hoosac Tunnel and Wilmington because of its numerous severe grades, upon several of which, especially under bad rail conditions, it was anticipated that operation in second gear, with the motor running at high speed, would be required if the regular running schedule was to be maintained. For this reason a T-head, rather than a valve-in-head motor was selected; preference was given to a six rather than a four cylinder motor because of the more even application of power and comparative freedom from vibration; and further, the management looked for a motor designed especially for rail operation rather than merely a truck motor adapted to railway service.

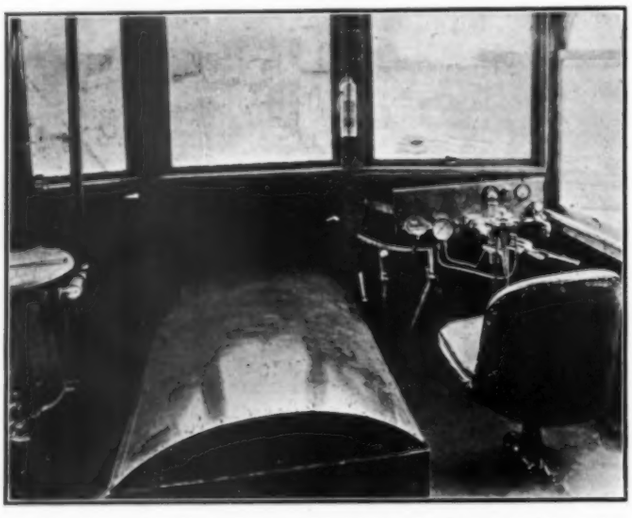
These requirements were satisfied in the motor designed by the Wisconsin Motor Manufacturing Company, in conjunction with the Four-Wheel Drive Auto Company, for rail service and in addition there was offered the important

feature of power application to each of the four truck wheels, thus materially increasing the tractive force, and permitting the operation of a trailer coach.

The application of power to the forward as well as the rear truck wheels admits utilization of all of the tractor weight for tractive force and at the same time, by a more equable distribution of the weight of the unit, diminishes the rear end stresses ordinarily borne by reason of the power application to the rear axle only. Each of the four wheels on this tractor bears 25 per cent of the weight of the unit and pulls 25 per cent of the load, whereas rear driven equipment has approximately only 60 per cent of its weight available for traction.

The application of power to each of the four wheels is secured by means of a shifting jaw clutch four-speed transmission and a five-inch link belt silent chain, to a subtransmission, or high speed reverse gear assembly, from which the power is delivered to both front and rear axles by means of connecting propeller shafts. The transmission gears are not the ordinary type of truck shifting gears, but consist of a jaw clutch designed for this assembly, particularly to prevent the possibility of gear stripping, and in which the gears are always in mesh.

The air brakes are served by an automatic two-cylinder Westinghouse compressor mounted directly back of the transmission case, through which the power shaft projects sufficiently to permit connection with the compressor by means of a dry plate clutch. The compressor is controlled by an automatic governor which operates the clutch as the pressure varies from that at which the governor is set.



Operator's Compartment, Showing Controls and Heater

An important feature of the equipment which provides comfortable riding is the special springs and suspension. The springs are 54 in. long and 2½ in. wide, and are made of heat treated chrome-silicon manganese steel. They are connected to the chassis frame with double swing shackles which allow the chassis to swing sideways slightly, which cushions the side impact between the wheel flange and rail, thus improving the riding qualities of the cars. Heat is furnished by a hot water system connected with a coal stove in the operator's compartment. The car bodies are steel framed and sheathed with doors and interior furnishings of wood. Generous window lighting is provided and at night the cars are abundantly lighted by electricity. The seating is of normal passenger coach type, except that wide seats provide for three passengers on one side of the aisle while narrower seats accommodate two on the opposite side.

The tractor and trailer coach equipment has been operated since June, 1923, on a schedule of approximately 600 miles per week with an average consumption of 217 gallons of gasoline, 18½ quarts of motor oil and three quarts of transmission oil.

The average running time, including stops, is 15 m.p.h. The total operating expense has been found to be 26.7 cents per mile, which includes the wages of trainmen and motormen, fuel, lubricants, maintenance, repairs, and other miscellaneous items.

This road had succeeded in operating its steam passenger service at a somewhat lower cost than most short lines, but the reduction effected by the Four-Wheel Drive equipment to the figure of 26.7 cents per mile represents so great a saving as to be extraordinarily satisfactory.

Although the equipment now in service has a capacity of 55 passengers and 2,000 lb. of mail and express, loads of 70 passengers and 7,500 lb. of mail and express have frequently been handled.

There has always been abundant power, and although it was anticipated that under bad weather conditions it would sometimes be necessary to fall back to low gear it has been found possible to handle the train under adverse conditions in the second speed, in which a speed of 10 m.p.h. is secured. On level stretches speeds up to 32 m.p.h. are being obtained.

The manufacturer's general estimate of operating costs for such equipment operating on lines having only ordinary grades was somewhat lower than the cost obtained by the Hoosac Tunnel and Wilmington. It is considered that under favorable conditions a tractor and one trailer should operate at a cost of one cent per mile for running repairs, one cent per mile for general maintenance, five cents for fuel, three-fourths cents for lubrication and 12.5 cents for operating wages, making a total cost of 20.25 cents per mile, which, compared with the usual cost of running two car steam trains, would appear to present possibilities for considerable savings, it having been conservatively estimated that the cost of operating a steam locomotive alone is 93.7 cents per mile.

THE SOUTHERN PACIFIC has been offered a cash bonus of $100,000 by the Chamber of Commerce of Las Cruces, New Mex., if the company will build a railroad from Alamogordo, by way of Las Cruces to Deming, in connection with the proposed merger of the Southern Pacific and the El Paso & Southwestern.

Ewing Galloway

New York Central's Bridge Over the Hudson at Castleton, N. Y., Nearing Completion

Automatic Train-Control Order Modified*

Forty-two Roads Temporarily Excused†—Permissive Feature Allowed—Commissioner Esch Dissents

THE INTERSTATE COMMERCE COMMISSION, in a decision dated July 18 but not made public until July 26, has modified its automatic train-control order of January 14, 1924 (No. 13,413), so as to suspend with respect only to the 42 additional roads named therein that were not affected by its original order of June 13, 1922, the effective date of the order, until the further order of the commission. The commission also modifies its original order so as to permit the use of the "permissive feature" by which an alert engineman may forestall automatic setting of brakes, as was strongly urged by the railroads at the hearing. It declined, however, to vacate the order, as the carriers had requested, or to extend the time set for the completion of the installations required of 49 roads under the first order. This leaves in effect the requirement that the 49 roads named in the first order complete an installation over one division by January 1, 1925, and that 47 of them, two having been omitted because they had but one division, complete installations on an additional division by February 1, 1926.*

The commission says it will be glad to co-operate to the extent of its ability in such a plan as was suggested on behalf of the railroads for tests to be conducted on selected sections of railroad by a joint committee of representatives of the commission and of the roads, but will not permit this to serve as an excuse for delay in making the installations required by its orders. The report says that many carriers included in the first order have not pursued the work of installation with due diligence.

Commissioner McManamy filed a separate concurring opinion outlining his views on the subject of train-control, favoring a more liberal policy in the matter of time to meet the commission's requirements, and urging that the commission give more consideration to the need for extension of the block system, instead of confining its attention to automatic train-control; and to different needs of different roads. Mr. McManamy's opinion is reported under a separate head. Commissioner Esch filed a dissenting opinion, in which Commissioners McChord and Cox concurred, objecting to the approval of the permissive feature and to the offer to co-operate with the carriers in conducting or supervising tests; this on the ground that such a course would lead to procrastination and delay. Mr. McManamy, in his separate opinion, answers certain points made by Mr. Esch.

In the original report (June, 1922) the commission prescribed specifications and requirements and required 49 carriers to install devices upon a passenger locomotive division. The installations are to be completed by January 1, 1925. On January 14, 1924, the commission issued a further order, requiring 47 of the 49 carriers to install such devices upon an additional passenger locomotive division on or before February 1, 1926. This second order also required 45 other roads, not included in the first order, to make installations on or before February 1, 1926.

On March 3, 1924, 88 of the carriers filed a joint petition requesting a hearing; that the second order be vacated and set aside; that an extension of time for compliance with the first order be granted; and that certain modifications of that order be made. Many roads filed separate petitions. The commission exempted three roads from the provisions of the second order, namely, the Bessemer & Lake Erie, Gulf & Ship Island, and the New Orleans Great Northern. These roads were included in the 45 roads named for the first time in that order. On March 21, 1924, the commission reopened the proceedings for hearing with respect only to the second order, as it affects the remaining 42 roads. The 42 roads are therefore the respondents in the present proceeding.

Hearings were held in May at which a general committee representing substantially all the respondents presented evidence and at which many of the respondents presented separate evidence. Proprietors and inventors of train-control devices also appeared and gave testimony. At the close of the hearing the case was orally argued.

After referring to tests made since its previous order the commission says:

Introductory

The record indicates that progress has been and is being made in eliminating undesirable features in operating, upon the installations in regular service and upon the test installations of various types, although this progress has not been such as might have been made if the carriers generally during the past two years had made larger installations and more extensive tests.

[The report here summarizes results on the Chesapeake & Ohio and the Pennsylvania.]

Nearly two years have elapsed since we found, as a matter of fact after a long series of tests, that devices of the ramp type were practicable under actual service conditions; that they properly perform the functions for which they are designed; and that, when properly installed and maintained, they increase the safety of train operation. We also said that there was expectation of satisfactory tests and operation of the other types of train-control devices. Many of the carriers, however, have decided not to install ramp type devices and have turned to other devices. Expressing the opinion that the ramp type will ultimately prove inferior, they have devoted the greater part of the last two years in testing or awaiting developments of the inductive type. The results of these tests have not in all cases been entirely satisfactory, but many of the carriers are going ahead with permanent installations of inductive devices, particularly of the continuous control type, for the reason, as they state, that such devices will demonstrate their superiority once the experimental stage, which they assert still continues, has been passed.

Progress Made Under First Order

The extent to which the carriers named in our first order, in addition to the Chesapeake & Ohio, the Chicago & Eastern Illinois and the Chicago, Rock Island & Pacific, have progressed in making the permanent installations required by that order is as follows:

Atchison, Topeka & Santa Fe, a continuous control inductive type between Chillicothe, Ill., and Shopton, Iowa, 104 Miles, which is about 82 per cent completed.

Delaware, Lackawanna & Western, a continuous control inductive type between Elmira and Buffalo, N. Y., 146 miles, about 40 per cent of the roadside equipment being ready for installation.

Norfolk & Western, a continuous control inductive type between

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* The first order of the Commission on automatic train control was reported in the *Railway Age* of January 14 and June 24, 1922; the second order appeared January 19, 1924, page 247. Hearings on which the present order is based were reported May 10, 1924, page 1145; May 17, page 1209; May 24, page 1255.

† The 42 roads now temporarily excused are:

Bangor & Aroostook
Carolina, Clinchfield & Ohio
Central New England
Central of Georgia
Charleston & Western Carolina
Colorado & Southern
Denver & Rio Grande Western
El Paso & Southwestern
Florida East Coast
Fort Worth & Denver City
Grand Trunk Western
Gulf, Colorado & Santa Fe
Gulf, Mobile & Northern
Hocking Valley
Houston & Texas Central
International-Great Northern
Kansas, Oklahoma & Gulf
Lehigh & New England
Louisiana & Arkansas
Louisiana Western
Louisville, Henderson & St. Louis
Maine Central
Midland Valley
Minneapolis & St. Louis
Minneapolis, St. Paul & Sault Ste. Marie
Missouri, Kansas & Texas
Missouri, Kansas & Texas of Texas
Mobile & Ohio
Nashville, Chattanooga & St. Louis
New Orleans, Texas & Mexico
Norfolk Southern
Northwestern Pacific
Oregon Short Line
Rutland
St. Louis Southwestern
Seaboard Air Line
Spokane, Portland & Seattle
Texas & Pacific
Virginian
Wabash
Western Pacific
Yazoo & Mississippi Valley

Shenandoah, Va., and Hagerstown, Md., 107 miles; wiring and signal system, 45 per cent complete, transmission line about 60 per cent complete.

Reading Company, a continuous control inductive type between Camden and Atlantic City, N. J., 55.5 miles; about 30 per cent of the material for the train-control installation along right of way is on the ground and about 20 per cent of the poles for a new pole line have been erected, and certain changes in signals have been made.

Cincinnati, New Orleans & Texas Pacific, intermittent inductive cam governor type, between Ludlow and Somerset, Ky.; preliminary section of 35 miles, double track, from Ludlow to Williamstown is under construction and the carrier advises that it will be completed in a few months.

Southern Pacific, intermittent inductive type from Oakland to Tracy, Cal., 75 miles; about 38 per cent complete.

Galveston, Harrisburg & San Antonio, intermittent inductive type from Rosenberg to Glidden, 51 miles; between 6 and 7 miles have been installed and about 60 per cent of the material has been received for the balance of the installation to Glidden. Seven locomotives are equipped. It is expected that the installation will be completed by November 1, 1924.

In addition to these installations, short test sections are installed as follows:

Buffalo, Rochester & Pittsburgh, intermittent inductive type on 15 miles of road.

Chicago & Alton, intermittent inductive type on 14 miles of road.

Chicago & North Western, intermittent inductive type on 16 miles of road.

Delaware & Hudson, continuous control inductive type on 3 miles of road.

Erie Railroad, ramp type, 6 miles of road; continuous control inductive type 1½ miles of road.

Missouri Pacific, intermittent inductive type, 14 miles of road.

New York, N. H. & H., continuous control inductive type, 10.5 miles.

Pennsylvania, continuous control inductive type, 54 miles.

St. Louis-San Francisco, intermittent inductive type, 10 miles.

Union Pacific, ramp type, intermittent inductive type and continuous control inductive type, 18 miles, one engine equipped with the 3 devices.

In all the test installations except that on the Pennsylvania one or two engines are equipped. The test installation upon the Pennsylvania extends from Lewistown to Sunbury, Pa., and is in regular service with 13 equipped engines.

The carriers claim that undesirable features exist in all the devices. The discovery and elimination of undesirable features has not proceeded as rapidly as we had reason to expect. We have pointed out the fact that progress has been slow in providing means automatically to compel obedience to signal indications. Eighty collisions which we investigated in the period from January 1, 1911, to March 31, 1922, occurred upon lines equipped with automatic block signals, due directly or indirectly to the failure of enginemen to observe or to be governed by signal indications. * * * The extent to which train-control devices would have prevented these accidents is uncertain, but it is highly probable that they would have prevented many of them.

Many of the respondents express the opinion that devices of the ramp type are not the devices that will ultimately be adopted, and that, therefore, they do not desire to install them. Many insist upon the continuous-control type because of the possibilities of development which they claim to see. They claim, for example, that the use of continuous-control devices with cab signals may, in the course of time, eliminate the use of wayside signals. They do not, however, say that wayside signals may be entirely eliminated at the present time. * * *

It is urged, also, that on heavy traffic lines the use of a continuous-control device will not limit the capacity of the line to the same extent as an intermittent device; and that the former will immediately indicate in the locomotive cab when a condition ahead calls for restriction in speed, and likewise immediately indicate when the restriction is removed. This, they say, will enable the engineman to take prompt advantage of opportunities to increase his speed, instead of waiting for an indication at a more distant point on the line, as would be the case with an intermittent device.

Respondents assert generally that they are not opposed to the principle of automatic train-control, but that the devices which they would now feel constrained to select for installation are in the development stage as far as the apparatus is concerned, and still in the experimental stage from the standpoint of adaptation to railroad operating conditions.

After a further exhaustive hearing of the petition now under consideration, we see no reason to change the views expressed [in 1922] except that we find that further material progress has been made in the development of many of these devices, especially where they have been permitted to be installed and operated. At this hearing proprietors and witnesses for the intermittent inductive and ramp types of devices contended and offered testimony to show that their devices are cheaper and more practicable than those of the continuous-control inductive type, and that they are adequate to meet our requirements and the necessities of railroad operation.

In the first report we eliminated from our specifications the provision under which with an automatic train-stop device the engineman, if alert, would be permitted to forestall the application of the brakes. Certain of the respondents objected to the elimination. Respondents now ask that it be restored for the reasons, as they contend, that without it they are compelled for operating reasons to use some form of speed control. They further contend that the introduction of this permissive feature would eliminate many of the objections that the operating officers now make to the so-called inflexibility of automatic train-stop devices. It is not necessary in all cases and at times it is even unsafe, the carriers contend, to stop long freight trains by means of the automatic application of the brakes at a stop signal, and in this contention they are supported by representatives of the employees. When proceeding up a long grade, such stops are often undesirable because of the difficulty of starting the train again with its heavy tonnage. When on a down grade, an automatic application of the brakes following an application by the engineer may waste air pressure to an extent that will endanger the safety of the train. Under certain slack conditions it may result in buckling the train. To facilitate movement of traffic when approaching junctions, yards, or other similar points, it is often necessary to pass signals at danger under the guidance of hand signals. * * *

The matter of providing for the permissive feature in automatic train-stop devices was considered in our original report. While there was testimony in that case both in favor of and against the permissive feature, it was inconclusive. At the hearing in this case the testimony was overwhelmingly in favor of the permissive feature. Operating men almost without exception favored the adoption of such a feature and expressed the opinion that it was sufficient to require the engineman to take some affirmative action to indicate that he is alert. The chief operating officer of the Rock Island and one of the locomotive engineers from that road who appeared as witnesses for the train control companies favor the use of the permissive feature. Certain carrier officials recognize the possibility that this feature might lead to carelessness, but believe that it should be left to the judgment of the management of a road to decide whether a permissive feature should be employed under certain operating conditions.

The Chicago & Eastern Illinois and the Chesapeake & Ohio, both use the permissive feature and no instance has developed where safety has been adversely affected thereby. Both of these companies favor its continued use.

We are of the opinion that the evidence now before us warrants a modification of our former conclusion with respect to this permissive feature, although we shall continue to keep this matter under close observation. Paragraph No. 1 under the sub-head "Functions," of our first order will therefore be modified to read as follows:

1. Automatic train stop:

(a) Without manual control by the engineman requiring the train to be stopped; after which the apparatus may be restored to normal condition manually and the train permitted to proceed; or

(b) Under control of the engineman who may, if alert, forestall the application of the brakes by the automatic train-stop device and control his train in the usual manner in accordance with hand signals or under limits fixed by train order or prescribed by the operating rules of the company.

The above modification requires no departure from the specifications and requirements contained in our first order; it merely provides an alternative feature which may be adopted, if desired.

Other objections on the part of individual respondents to the installation of automatic train-control are based on (1) alleged lack of necessity and (2) the cost, which, they contend, is great and would have a harmful effect upon their present financial situation. In order to obtain detailed information a questionnaire was prepared and each of the respondents was requested at the beginning of the hearing to furnish the information desired. This information has been tabulated and analyzed.

Cost

The estimates of the probable cost of installation were made mostly on information gathered by the operating and engineering forces of the several roads. The average cost per locomotive equipment installed, according to respondents' estimates, ranges from $1,020 to $1,360 for the ramp type devices; from $1,300 to $2,500 for the intermittent inductive devices; and from $2,400 to $3,400 for continuous inductive devices. These costs include speed control. The locomotive equipment for one device of the intermittent inductive type, for simple automatic stop without speed control, was estimated to cost $530. The average cost per mile of road, single track, is estimated at from $1,120 to $1,180 for the ramp devices; from $1,080 to $1,705 for intermittent inductive devices, and from $1,160 to $4,500 for the continuous-control inductive devices. The average costs per mile vary because of the different situations that have to be met on each road and the kind of protection that each road desires.

The total cost of installation of the ramp type device, superimposed upon a block signal system previously installed, now in

regular service upon the Rock Island upon a full passenger locomotive division of 165 miles, comprising 330 miles of track and 102 locomotives, was $235,789, or $1,429 per mile of double track.

The cost of installing automatic block signals where such signals are not now installed is estimated at from $2,500 to $4,500 per mile of road. For an installation of an intermittent inductive device upon the Mobile & Ohio, 135 miles and 40 locomotives, the cost of installing automatic block signals is estimated at $4,500 per mile; for automatic train-control about $1,800 per mile for the roadside equipment, but $1,600 per mile if the train-control apparatus is installed at the same time as the automatic block signals.

From the estimates that have been submitted by respondents it appears that the cost of installing upon their roads intermittent type devices is much less than the cost of installing devices of the continuous-control inductive type which many of the carriers are planning to select. Our specifications and requirements are broad and we believe can be met by much simpler devices at lower costs. On the lines of most of the respondents it would seem that these simpler and less expensive devices would be adequate for many years to come.

Proposed Joint Tests

At the hearing, it was suggested that a joint committee of representatives of this commission and of the carriers be appointed to decide upon and select for test purposes devices worthy of a practical test. The test areas and units for the devices selected by the joint committee should be limited, it is further suggested, to a maximum of about ten miles of road and ten locomotives for each device, subject to agreement as to terms, etc., between the joint committee and the individual carrier. It was suggested that 100 miles in each of the eastern, southern, and western regions, on various railroads under all conditions of density of traffic, heavy grades, and weather, would be adequate.

The carriers suggest, that, pending these tests our second order should be vacated and set aside; that the time fixed for the completion of installation under our first order, namely, January 1, 1925, should be extended to January 1, 1926; that the installation already made, or to be made, under the latter order be subject to inspection and approval by the joint committee when an installation of ten miles of road and ten locomotives has been made; and that complete installation thereof be dependent upon the report of the committee and this commission.

The plan outlined is essentially the same as that which we suggested in 1920 and under which a joint committee of the American Railway Association was appointed in November of that year. This committee conducted tests in conjunction with representatives of our bureau of safety. The facts of these tests and the observations made are set forth in our report of June 13, 1922. As a result of these tests we found that there were in actual service under operating conditions devices which were practicable and which would properly perform the functions for which they were designed. Since that time improvements have been made in a great many of these devices. We are satisfied from our tests and observations that devices of various types can be installed in compliance with our order which will meet all our specifications and requirements for adequate automatic train-control. To halt the work already under way, in order to await the decision of a joint committee would, in our opinion, unduly delay the progress of train-control. We see no reason, therefore, for vacating or setting aside or for generally extending the effective date of either of our orders in so far as they relate to the carriers covered by the first order, or for delaying in any way the execution and enforcement of these orders with respect to such carriers.

With this understanding as to the enforcement of the orders now entered, and only upon this understanding, there is merit in the plan of investigation and research suggested by the carriers if they wish to adopt it. Such a plan would doubtless result in the testing of many devices which otherwise might not be given the opportunity of a trial, and would aid in the development of the art in progress toward the standardization which ultimately may prove desirable. We shall be glad to co-operate in such a plan to the extent of our ability, but shall not permit it to serve as an excuse for delay in the installations required by our orders.

We have given consideration to the particular circumstances and conditions affecting the installation of automatic train-stop or train-control devices upon the lines of the respondents herein and in view of the action which we have already taken with respect to installation of such devices upon the lines of the larger carriers and the extent thereof, we have concluded that, with respect to the 42 carriers now before us, our second order should not be vacated and set aside as prayed by said respondents, but that the effective date thereof should be suspended until our further order or orders herein.

An appropriate order will be entered.

Mr. Esch's Dissenting Opinion

I dissent from the finding which changes paragraph No. 1, under the sub-head "functions," of our first order. I dissent also from the finding that this commission should co-operate with a committee of the carriers in selecting and testing devices, because the time for that is past and we so found in our report adopted over two years ago. There is not now, has not been, and will not be in the future, any obstacle in the way of the carriers testing any device; for this they need no license from us; they may do so without our or any ones permission, and they know this.

Manual control of an automatic train-stop device permits an engineman to forestall an automatic brake application at a danger point and proceed according to his own judgment. It, therefore, nullifies the essential purpose of the automatic device. It permits an engineman to run by stop signals, which is a practice frequently indulged in, as our accident reports show, and a practice that is the cause of many train collisions. We refused to permit its use under our first order upon the ground that it is dangerous. The reasons for its use that are given in the present proceeding are the same as those of two years ago, and in them I can find no reason to justify the majority in reversing the unanimous judgment by which this commission condemned it.***

I am opposed also to the majority approval of the plan of the carriers for experimentation and tests of devices by a joint committee in co-operation with this commission. We found over two years ago that these devices are past the experimental stage and that the carriers should be required to install them. Our order was based upon that finding and under it some progress has been made in permanent installations of devices. This progress will be halted until the committee is through with its experiments.

No period of time is specified for the completion of the work of the committee. A long time will elapse before any conclusions or recommendations are made by this committee. There is no assurance, furthermore, that the carriers as a whole will co-operate in the work of the committee so as to permit a speedy solution of the objection interposed by the carriers to the installation of train-control devices. The work of the former joint committee was hampered because the American Railway Association refused to assume additional expenses in connection with actual installation and operation of tests. We have no reason to believe that the new committee will receive any different treatment from that accorded the first one. In the light of our past experience with joint committees, I can see in the carriers' plan only procrastination and delay.

Intermittent type devices have been greatly improved during the past few years. With the exception of three roads that have installed devices of the ramp type the carriers generally have definitely stated to us that they will not install this latter type. Thus they discard the successful results of years of effort to develop a practicable automatic train-control device, which upon final test we have found meets all our requirements. In view of the expressed attitude of the carriers the commission's decision and conclusions appear to have but little weight. In view also of this decision of the carriers—if they are to be permitted to adhere to it—any further expenditure of either time or money experimenting with this type of device would simply be wasted, notwithstanding the fact that it has been found by us to meet every requirement, and that we have approved its installation. This would be true even though a joint committee should supervise such experimentation.

The majority report, furthermore, does not sufficiently emphasize the fact that many carriers are going far beyond the necessary requirements of our orders when they plan, as the record shows, to adopt highly complicated and expensive continuous-control devices instead of less expensive ones. Such continuous-control devices have not yet been perfected and as to their ultimate practicability carriers' experts even expressed doubt. Many carriers have selected the continuous-control type although the testimony shows that this kind of control is primarily intended for use on heavy congested lines and that it is necessary only on such lines if necessary at all. This clearly appears from the testimony of carriers that are foremost in advocating this type. No general necessity for installing such a device has been shown, nor anything to indicate that the great majority of the carriers named in our orders, and they constitute the largest roads in the country, must install it as they would have us believe.

I wish to call attention to the situation which may arise in connection with the enforcement of existing orders, by amending the requirements to permit the use of a manual control feature. Section 26 of the interstate commerce act, provides that our order requiring a carrier to install automatic train-stop or train-control devices, which comply with specifications and requirements prescribed by us, shall be issued and published at least two years before the date specified for its fulfillment. Many of the carriers have taken the stand that our refusal to permit the use of manual control in connection with train-stop devices in our order of June 13, 1922, has prevented them from using the plain automatic stop and forced them to use some form of speed control. The change in the requirements now made removes this obstacle to the use of an automatic stop. The question then arises as to whether the carriers can, under the law, require us to give them a further two-

year period within which to install an automatic train-stop in accordance with the new order and specifications. Thus an opportunity for more procrastination and delay.

Congress and this commission have been at work for more than eighteen years in an endeavor to persuade and require the carriers to install automatic train-control, with scant results. I feel that the action taken by the majority will be a backward step, very greatly retarding the work that has already been begun.***

The general tone of Commissioner McManamy's opinion conveys the thought that the commission has gone too far with respect to the installations it has ordered. When the first order was before us for consideration in the latter part of 1921, the matter was very fully considered and discussed. It was decided then that the so-called $25,000,000 roads should be required to make installations. These roads were selected because of their traffic density and the risks of accidents from train collisions. I do not see what good will result from a discussion of this policy now in connection with the present order. The requirements of the first and second orders as they concern the original 49 roads are clearly not in issue. They ought not, therefore, be brought into this case even by inference. The matter of ordering installations of automatic block signals is not in issue and is outside of the record. We have relieved the 42 respondents, the only ones before us, from any present obligation under the order and the question of further installations is in abeyance. I think the concurring opinion in part is an expression of dissent from the policy of the commission adopted in the first and second orders. That is the effect, at any rate, and I doubt the propriety of it.

Commissioner McManamy compares the time allowed for compliance with our first order with the time allowed for the installations of safety appliances other than automatic train-control. The application of safety appliances was required upon all roads, therefore a longer period for compliance was necessary. The first train-control order allowed two and one-half years for the installation of devices upon 49 passenger engine divisions, a relatively small part of the mileage of the country.

There is a reference to the permissive feature on the C. & O. It is stated that the permissive feature has been found essential in order to avoid the stopping of trains in tunnels, bridges, etc., where such stops are undesirable. As far as such undesirable stops are concerned when a plain stop device without the permissive feature is used the engine apparatus may be cut out of service, without the necessity for the engineman to get down and manually release or reset the device, by the breaking of a seal in the cab. Such undesirable stops are due to some failure of the device; the reset feature would not in such cases restore the device and therefore the action necessary in order to proceed would be to cut out the device in the cab.

Reference is made to the fact that the human element is not eliminated from the devices. The specifications under design and construction have guarded against the failure of the human element as far as possible by providing as one of the essential requirements, as follows:

> 3. The apparatus shall be so constructed that it will, so far as possible, perform its intended function if an essential part fails or is removed, or a break, cross, or ground occurs in electric circuits, or in case of a failure of energy.

This requirement means that if any part of the device fails it must be so designed as to cause a stop.

I am authorized to say that Commissioners McChord and Cox concur in this expression of dissent.

The Interstate Commerce Commission has denied the petition of the Reading Company that it be exempted from the operation of the train control order and also a petition of the Galveston, Harrisburg & San Antonio for a modification of the order to permit it to make its installation on a portion of a division.

THE HEADQUARTERS of the American Train Dispatchers' Association, Chicago, has been moved to the new building of the organization at 10 East Huron street.

THE CALL LETTERS of radio stations operated by the Canadian National Railway have been changed so that each station's name begins with "CNR." The call is completed by adding the first letter of the name of the city in which the station is located. The station in Ottawa will sign "CNRO," Montreal station will be designated by "CNRM" and so on through the entire list of stations. The new arrangement has been adopted through the courtesy of the French and Moroccan governments, CN having formerly been assigned to Morocco.

Superpower Report Made Public

ELECTRIFICATION of transportation in the northeastern section of the United States need not lag if adequate means of generating power are provided for, according to the conclusions reached in the report of the engineering sub-committee of the Northeast Superpower Committee made public Monday, July 28, at the Department of Commerce. Herbert Hoover, secretary of commerce, is chairman of the committee. The report states that the increasing electrical power demands of the northeastern area of the United States, if they are to be supplied on an economical and adequate basis, necessitate the extension of interconnection between the different systems, the building of large, centralized, steam-electric plants located at strategic points and the development of the large hydro-electric projects.

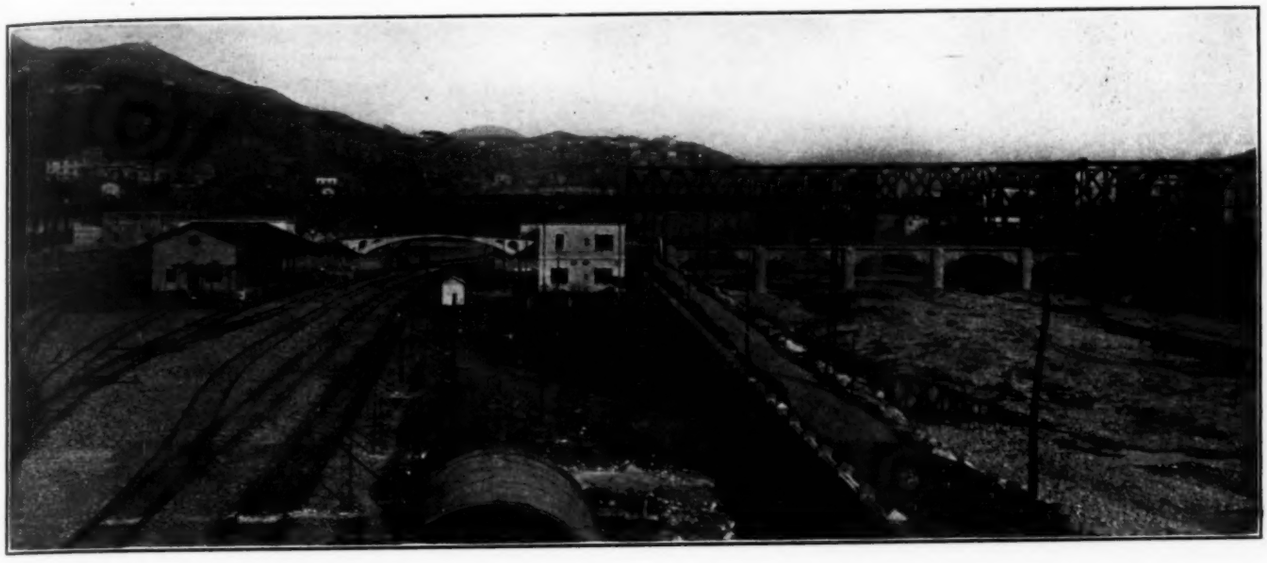
These recommendations, in the committee's opinion will mean the saving of over 50,000,000 tons of coal every year; production of power at less cost; security in power supplies against interruption with its losses through disturbed production and unemployment; larger reserves of power through which other industrial development need not lag, awaiting power construction; electrification of transportation with increase in its efficiency; extension of power uses to the farm and saving of human effort.

The present report is an outgrowth of a conference held in New York City last October, with the consent of President Coolidge, between Secretary Hoover and the chairman of the State Utilities Commission of the eleven northeastern states. This conference led to the formation of the Northeastern Superpower Committee, composed of representatives of the states and of the federal government. While others were engaged on the legal questions involved, an engineer sub-committee undertook a comprehensive survey of the technical aspects of superpower development in the states affected. Their report, now given to the public, will be referred to a meeting of the full committee to be held some time next fall.

The survey of power facilities and power needs made by the engineer sub-committee covers the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia. There has been included also some reference to the states of Ohio, Virginia and West Virginia, since under certain circumstances power in these regions will be contributory.

Five charts which accompany the report are of particular interest and value to the prospective users of power as well as those who are interested in power development. The first chart shows steam power developed, projected superpower steam stations, hydro-electric power developed, potential hydro-electric power, soft coal fields, and hard coal fields. The second chart shows the distribution of present power consumers with an estimated increase for 1930. The third includes a layout of existing transmission systems. The fourth shows existing transmission lines of 110,000 volts and over and indicates certain new lines that will be necessary to bring power from possibly cheap sources of production to the larger load centers. The fifth chart divides the northeast section of the country into areas and makes a comparison of costs of power from various sources.

The report as a whole contains a concise and a straightforward statement of what the Department of Commerce hopes may be accomplished by interconnection of power systems in the northeast section of the United States. The report indicates growth in the use of electric power for industrial and other purposes. It recommends extension of interconnections between different systems, construction of large steam plants strategically located, and development of large hydro-electric projects.



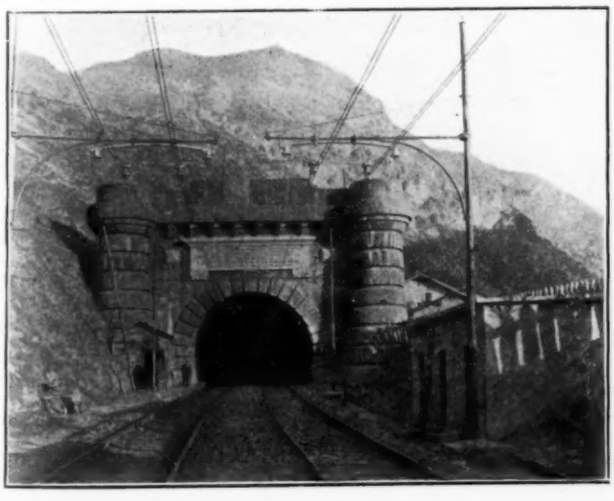
Along the Italian State Railways Near Genoa

Italy's Railways from an American Viewpoint

Efficiency Greatly Increased But Retrenchment May Have Been Carried Too Far

By Charles L. Dinsmore

THE WRITER was unable to get any authentic official information concerning the railroads of Italy for the reason that at the time of writing nothing official had been issued by the government since December 31, 1922.

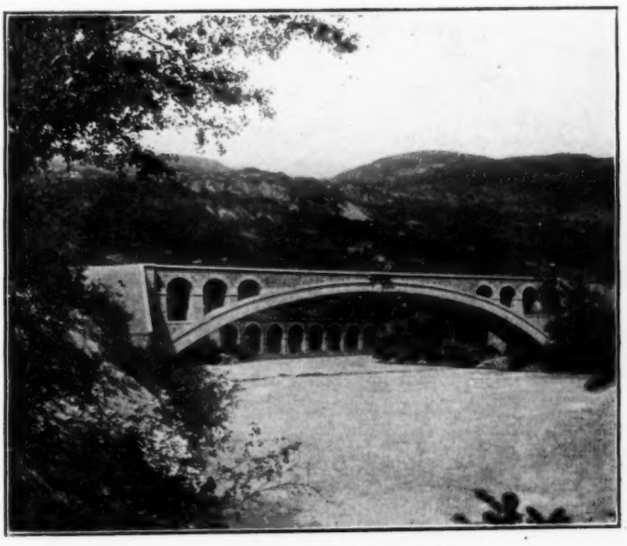


A New Tunnel on an Electrified Line

To get anything semi-official from anyone connected with the railroads was difficult because no one wanted to be quoted.

The following presentation of the situation, therefore, is given entirely on the writer's judgment after conversations with railway officers, members of Parliament, railroad shopmen, merchants and travelers on these roads.

Two years ago, before the Fascisti movement became dominant, the railroad unions ran the trains under their own regulations, which were so numerous, conflicting and arbitrary that the whole system became disorganized, and the arrival of freight and passengers at destination was a matter of pure speculation. Rolling stock was in shockingly bad condition and very little attempt was made at repair. Roadbeds were neglected because work was necessary to



Railway Bridges Near Turin

maintain them. The whole energy of the unions seemed to be devoted to consultations on what should or should not be done with the net result that nothing whatever was accom-

plished. Train crews started their trains when they were satisfied with the condition of equipment and the character of the passengers. There were instances where enginemen, learning that there were soldiers and priests among the passengers, refused to turn a wheel until the priests and soldiers were removed from the trains.

Strikes were almost continuous for one or another excuse. In fact, crews moved their trains when they decided it suited them. During the ascendency of the radicals, all branches of industry came to a standstill; factories produced practically nothing; freight was scarce; passengers were few.

When the Fascisti started in, as they thought, to take in hand the labor situation in every branch of industry, they first attacked the railroad communists, driving them completely off the right-of-way.

Next to the activities of radical employees, the shortage of coal was the greatest hindrance to the proper operation of the railroads. The imported coal was either of poor quality or very expensive and deliveries were slow. As a result, most of the coal was of inferior quality, producing but little steam and thereby causing delays to trains of from two to seven hours in runs of only two hundred miles and less.

Improvement with Ousting of Obstructionists

With other industries starting up and reliable men taking the places of the obstructionists, railroad affairs began to improve, but there still remained high freight rates, expensive coal and lack of traffic.

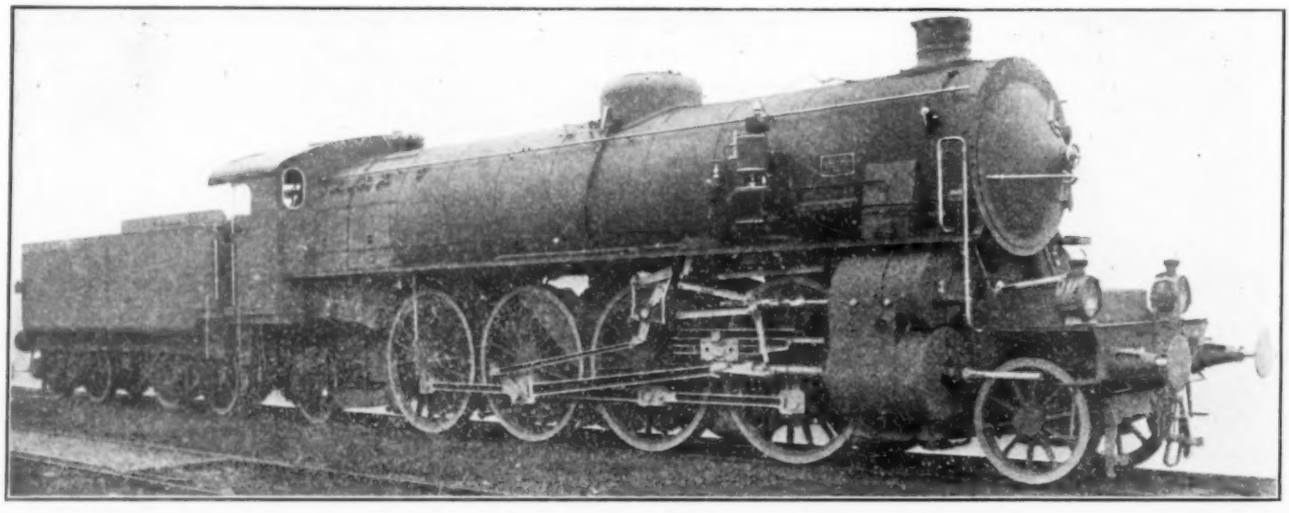
The government considered the plan of leasing some of the state-owned roads to private companies and in some cases of short lines through rather unproductive sections of the country actually did lease some lines, but in the case of main lines it was eventually decided to continue government operation.

The leased short lines, being dependent on local traffic and conditions, were obliged to cut down the forces of employees and the number of trains. As these short lines are for the most part electrically operated, they could regulate operating expenses by reducing or increasing the number of trains and employees as conditions required, much more effectively than the main lines which are generally steam roads. Furthermore, they were permitted by the government to raise or lower freight and passenger rates as the traffic lessened or increased.

The equipment of Italian railroads, as most readers of the *Railway Age* know, can not compare to that of roads in the United States. Freight cars are short, low and of flimsy construction. Most of them are of the gondola type of about 20 tons' capacity and are furnished with a tarpaulin or canvas cover to protect their contents. Most of these cars are equipped with two two-wheel trucks, some have three two-wheel trucks—one at each end and one under the center of the car. The box cars are but little longer and have a height of about six feet from sill to top of car. Some of these have two four-wheel trucks. One is impressed by the lightness of the wheels which are of the spoke type. The freight cars appear old and delapidated.

A Freight Station Near Genoa

The passenger cars, shorter, lower and lighter than cars on American roads, are in conformance with European practice, divided into compartments crosswise of the car, each compartment accommodating eight or ten passengers. On through trains the coaches have a corridor at one side of the coach into which the compartments open. All corridor cars are vestibuled but, since they are coupled by hook and chain these vestibules are deeper than on American trains, having at the bottom two steel plates, one attached to each coach and each extending from a foot to eighteen inches from the coach and one overlapping the other.

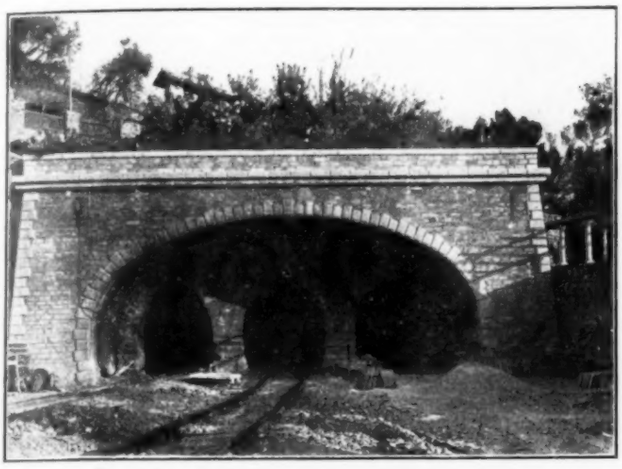


A Modern Italian Locomotive

Locomotive equipment includes the poorest to the best, from lightest to heavy. Some of the smallest, one would almost believe, had been purchased for some small logging road; the largest compare well with the larger locomotives

of America. The most striking variance between Italian and American locomotives is that the former have no pilots nor automatic couplers.

The larger locomotives are capable, over an average track, of hauling twelve of their light passenger coaches at a speed of fifty miles per hour, but heavy grades and long station



New Tunnels in Northern Italy

stops cut the average running time to about thirty or thirty-five miles per hour.

Shops Are Now Working Efficiently

Shopmen say that shops are fairly well equipped and that every man is working to the best of his ability because of the fear of the policy of retrenchment which is daily bringing reductions in working forces. Because every man fears that he may be next to go, machinists who have never worked at anything but railroad shop work are now looking about for any sort of employment.

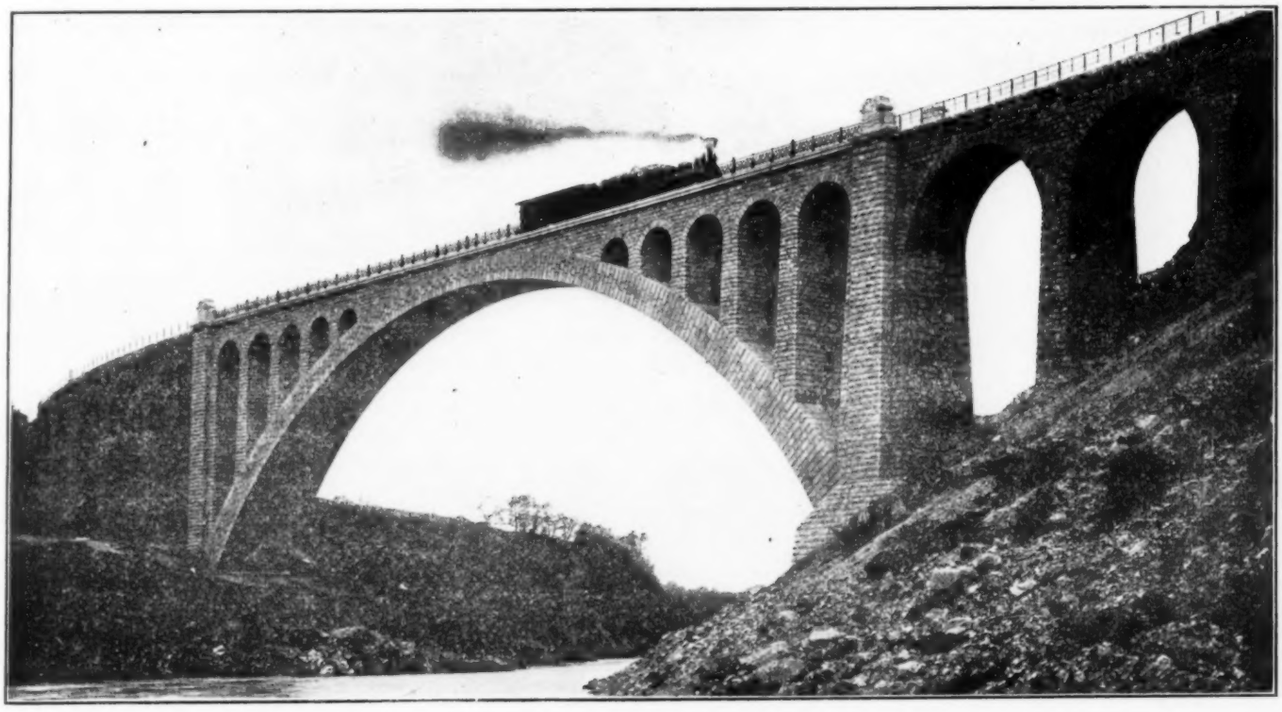
After the armistice was signed, the Italian government was confronted with the necessity of finding immediate employment for returned soldiers. Private industry was suffering from lack of money, material and orders, so the government put the soldiers to work on the railroads. This policy was pursued until railway employees became five times as numerous as they had been during the war. The government, however, could not stand the strain of the increased expense with no increase in revenue and eventually began to reduce forces, rapidly at first, but then more gradually until today employees number about the same as before the war. This decrease is particularly true on the short, leased lines where the number of employees is certainly smaller than in 1914. This policy was not followed in the case of employees alone but was extended also to officers, many of whom had spent years in the service of the railways.

Improvements Progress Slowly

Great projects in maintenance and improvement work have been planned which would require the labor of thousands of men. Some of these have been started with few men instead of hundreds. In northern Italy there have been built many bridges of stone of fine proportions and attractive in appearance. New roadbeds have been built and yards enlarged. The main lines in general are in excellent physical condition. But new construction not begun before 1921 has been practically abandoned. Many fine tunnels have been built or remodeled; this being particularly true of northern Italy.

Electrification

The main lines of northern Italy running between Turin and Milan to Genoa and the Riviera have been equipped partially for electric operation and over these lines trains are now being operated both by steam and by electric motors. The short connecting lines are electrically operated. With the great power plants now built in northern Italy and the completion of those now in process of building, Italy ought soon to be able to obtain enough power to run all her rail-



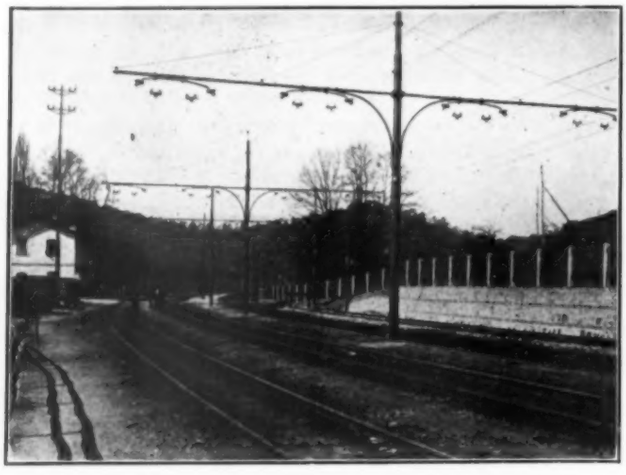
A Masonry Bridge in Northern Italy

way lines with electricity. Power is now furnished to Rome and Naples, two to three hundred miles from the producing plants, so it would seem reasonable that the government railways could easily be supplied anywhere in Italy. The large power plants are operated by water power furnished by the short, rapid streams in the mountains.

The government will probably extend its electrification as rapidly as it can, all things considered. All coal consumed in Italy is imported and costs, the writer was informed, at least six times what it does in America. By the substitution of hydro-electric for steam power great savings may be expected.*

Not All Credit Belongs to Fascisti

Perhaps, from these statements, the impression has been given that the Fascisti were the predominating influence in bringing about the redemption of the railroads from utter confusion to comparative stability. However, the trouble-making radicals who preceded the Fascisti formed a very small part of the total of Italian citizens. The balance of the people could see where things were drifting but could not see effective means of stopping the machine. The Fascisti, finding that activity and force, not inactivity and fear, worked salvation in their local communities, applied activity and force to government. They were the factor which turned the tide, but the true agency of permanent reform was the honest desire of most of the people to be allowed to work. Getting busy, they aided the railroads by first establishing better conditions in the industries which supply traffic to the railways. The Fascisti themselves appear to be more interested in politics than anything else. It is not politics, however, but industry which will bring prosperity to Italy and the Italian railroads.



A Typical Country Station

*It is reported that there has been a considerable decrease in the deficit of the railroads under the Fascist government control. A manager of one of the systems told the writer that this result was secured by stopping all new work, by decreasing the number of employees and officers and by the failure to purchase new equipment. "Perhaps," he said, "there is a decrease on the books, but let us watch for a final reckoning in a year or two."

Lehigh Valley Tie Renewals Now Below 100 Per Mile

ONE OF THE BEST indexes of the effectiveness of tie preservation work is the record of tie renewals required in successive years. With the rapid extension of this practice on the railroads of the country, figures have frequently come to light which have not only been illuminating but highly encouraging to all parties concerned with the upkeep of track under present conditions of traffic and the changing situation in tie production. There are few records, however, thus far disclosed, that are more striking than that recently received from the Lehigh Valley, which shows that in the last two years the number of tie renewals have been less than 100 per mile.

The record of the Lehigh Valley goes back to 1898, when, as shown by the accompanying table, renewals were made at the rate of 230 ties per mile. From 1898 to 1910, when the Lehigh Valley first started treating ties, the number of ties inserted per mile of track each year is noted to have fluctuated somewhat between 336 in 1900 and 155 per mile in 1906, and that following 1910 it has been as high as 289. But it is considered especially significant to note the decrease which has taken place since 1917, when 178 ties were inserted per mile of track. The total number of ties inserted last year was 310,676, as compared with 627,417 in 1898, and 618,593 in 1909, notwithstanding the fact that in recent years the line has been somewhat enlarged. On the basis of five year periods, the number of ties inserted per mile of track has decreased steadily from 1916, when the rate was 247 ties, to the low figure of 122 for 1923.

TIE RENEWALS ON THE LEHIGH VALLEY

	Year	Total miles of track	Total ties inserted for renewal	Total ties inserted per mile of track	Average number of ties inserted for renewals annually for five year period	Average number of ties inserted per year per mile of track for five year period
Fiscal year ending November 30	1898	2,740.61	627,417	230	.....	...
Fiscal year ending November 30	1899	2,776.91	680,052	245	.....	...
Fiscal year ending November 30	1900	2,806.64	944,096	336	.....	...
Fiscal year ending November 30	1901	2,858.09	850,797	301	.....	...
Seven months ending June 30	1902	2,862.53	308,300	...	.....	...
Fiscal year ending June 30	1903	2,892.99	886,895	307	797,851	284
Fiscal year ending June 30	1904	2,911.33	614,273	211	795,222	280
Fiscal year ending June 30	1905	2,930.24	575,992	196	774,410	270
Fiscal year ending June 30	1906	3,060.42	475,620	155	680,715	234
Fiscal year ending June 30	1907	3,090.14	569,272	184	624,410	210
Fiscal year ending June 30	1908	3,157.77	544,934	172	556,018	183
Fiscal year ending June 30	1909	3,170.76	618,593	195	556,882	180
Fiscal year ending June 30	1910	3,190.71	544,747	177	550,633	176
Fiscal year ending June 30	1911	3,198.57	451,232	141	545,755	174
Fiscal year ending June 30	1912	3,244.96	534,413	164	538,784	170
Fiscal year ending June 30	1913	3,277.47	877,558	267	605,308	189
Fiscal year ending June 30	1914	3,312.58	770,679	232	635,726	196
Fiscal year ending June 30	1915	3,320.03	959,811	289	718,738	218
Fiscal year ending June 30	1916	3,383.53	968,403	286	822,173	247
Six months ending December 31	1916	3,396.08	427,163	...	.....	...
Year ended December 31	1917	3,407.58	608,835	178	837,057	250
Year ended December 31	1918	3,395.87	589,997	173	779,545	231
Year ended December 31	1919	3,393.47	662,031	195	757,815	224
Year ended December 31	1920	3,398.86	395,414	116	644,936	189
Year ended December 31	1921	3,401.46	454,114	133	542,078	159
Year ended December 31	1922	3,412.92	263,342	77	472,980	139
Year ended December 31	1923	3,414.39	310,676	91	417,715	122

Recommended Lumber Standards Now on Trial

Success of the Plan for Simplified Practices Depends on the Degree of Co-operation Accorded

THE YEAR BEGINNING July 1, 1924, will mark the first trial in the movement toward the standardization of trade practices in the lumber industry and the support secured in this initial movement will have a marked influence on further efforts in this direction. The problems of simplification of sizes, nomenclature, grades and trade practices, have been before the lumber industry for many years and it has long been recognized that, even though cut from different species, lumber of similar characteristics and intended for similar purposes could be produced, merchandised, and applied in accordance with fixed standards. More recently many have urged that the wide variation in regional practices as to size, grading and names has reacted to the disadvantage of the user, retailer, wholesaler, manufacturer, and, indeed, all groups interested in lumber, and that sane standardization offered promise of increased economy, more profitable and stable business, and markedly better service.

Efforts in this direction date back to 1919, when the convention of the American Lumber Congress adopted an organized program for the simplification of lumber practices and under the leadership of Secretary Hoover of the Department of Commerce, representatives of all interests were organized into a Committee on Lumber Standardization. This committee was confronted with an unusually difficult task but its efforts have been fruitful of definite results in the form of a set of specific recommendations for simplified practice adopted last December with the suggestion that efforts be made to enlist the co-operation of producers and users in adopting these standards for the year July, 1924, to July, 1925. These recommendations cover a classification of lumber as to use—yard lumber, structural timber, and shop and factory lumber; standard nomenclature for the usual sizes embracing in each class standards of actual thicknesses and widths for the nominal sizes of boards and dimension lumber; and certain rules covering commercial practices. The following are excerpts from the recommended standards:

Lumber Classifications

Lumber is classified as (a) yard lumber, (b) structural timbers, and (c) shop or factory lumber. Different grading rules may apply to each class of lumber.

(a) Yard Lumber.—Lumber that is less than six inches in thickness and is intended for general building purposes. The grading of yard lumber is based upon the use of the entire piece.

(b) Structural Timbers.—Lumber that is six inches or over in thickness and width. The grading of structural timbers is based upon the strength of the piece and the use of the entire piece.

(c) Shop or Factory Lumber.—Lumber intended to be cut up for use in further manufacture. It is graded on the basis of the percentage of the area which will produce a limited number of cuttings of a given minimum size and quality.

Size Classification

Yard Lumber. (a) Strips.—Yard lumber less than two inches and under eight inches wide.

(b) Boards.—Yard lumber less than two inches thick, eight inches or over in width.

(c) Dimension.—All yard lumber, except boards, strips and timbers; that is, yard lumber two inches and under six inches thick, and of any width

(1) Planks.—Yard lumber two inches and under four inches thick and eight inches and over wide.

(2) Scantlings—Yard lumber two inches and under six inches thick and under eight inches wide.

(3) Heavy Joists.—Yard lumber four inches and under six inches thick and eight inches or over wide.

Structural Timbers. Timbers.—Lumber six inches or larger in the least dimension.

Standard and Extra Standard Yard Lumber Sizes

The terms "standard board and extra standard boards" and "standard dimension and extra standard dimension" shall be the designations for one-inch boards (yard) and two-inch dimension (yard), respectively, and applied to both softwoods and hardwoods.

Twenty-five thirty-seconds of an inch, S1S or S2S (measured at standard commercially dry shipping weight and moisture content for each species), shall be the thickness for the "standard yard board;" 26/32 in. S1S or S2S, for the "extra standard yard board."

One and five-eighths inches S1S or S2S (measured at standard commercially dry shipping weight and moisture content for each species) shall be the thickness for "standard dimension" not more than 12 in. wide; 1¾ in., S1S or S2S, for "extra standard dimension."

The finished widths of boards, dimensions and finished S1E or S2E (measured at standard commercially dry shipping weight and moisture content for each species) shall be ⅜ in. off on lumber of standard widths less than 8 in. and ½ in. off on lumber of standard widths of 8 in. and over.

The thicknesses and widths of finished lumber shall be as shown in the table.

SUMMARY OF STANDARD AND EXTRA STANDARD SIZES FOR YARD LUMBER, S1S OR S2S, S1E OR S2E.*

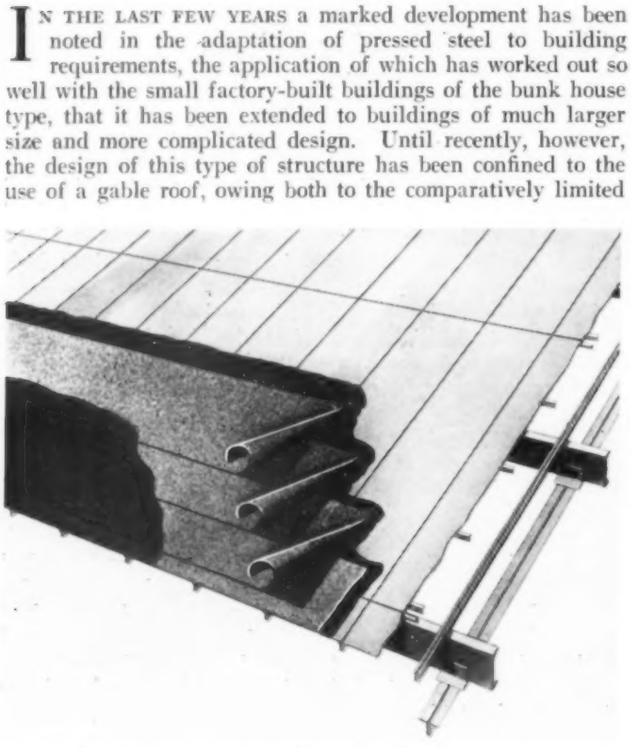
	Size, board measure		Dressed dimensions at standard commercially dry shipping weight and moisture content		
Product	Thickness, inches	Width, inches	Thickness, inches	Thickness extra standard, inches	Width, inches
Finish	...	3	5/32	...	2⅝
	...	4	7/32	...	3⅝
	...	5	9/32	...	4⅝
	...	6	11/32	...	5⅝
	1	7	25/32	26/32	6⅝
	1¼	8	1 1/32	...	7½
	1½	9	1 5/32	...	8½
	1¾	10	1 7/32	...	9½
	2	11	1⅝	1¾	10½
	2½	12	2⅛	...	11½
	3	..	2⅝	...	...
Common boards	1	3	25/32	26/32	2⅝
	1¼	4	1 1/32	...	3⅝
	1½	5	1 5/32	...	4⅝
	2	6	1⅝	1¾	5⅝
	...	7	...	...	6⅝
	...	8	...	...	7½
	...	9	...	...	8½
	...	10	...	...	9½
	...	11	...	...	10½
	...	12	...	...	11½
Dimension	2	2	1⅝	1¾	1⅝
	2½	4	2⅛	...	3⅝
	3	6	2⅝	...	5⅝
	4	8	3⅝	...	7½
	Over 4	10	Off ⅜	...	9½
	...	12	...	...	11½

* The thicknesses apply to all widths and the widths to all thicknesses.

The recommended standards have been put before the users and producers of lumber in pamphlet form by the United States Department of Commerce, with a request that they be adopted and followed for the year beginning July 1, 1924. They have received endorsement of lumber manufacturers' associations and now await favorable action by the users of lumber.

Flat Steel Roofs for Buildings

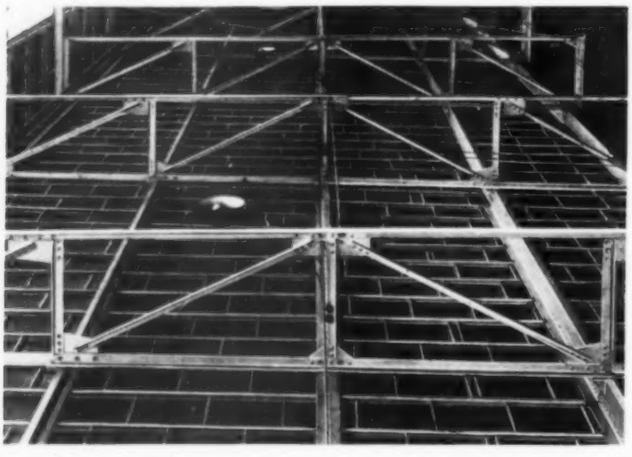
IN THE LAST FEW YEARS a marked development has been noted in the adaptation of pressed steel to building requirements, the application of which has worked out so well with the small factory-built buildings of the bunk house type, that it has been extended to buildings of much larger size and more complicated design. Until recently, however, the design of this type of structure has been confined to the use of a gable roof, owing both to the comparatively limited



A View of the Steel Roof, Showing the Method of Applying the Roofing

demand for any other type of roof for the smaller buildings and also to the problem of securing water tightness. The recent construction of several steel buildings of this character with flat roofs of steel is therefore a development of note in this field of activity.

These roofs consist of a deck of copper bearing steel covered with composition roofing so designed as to permit erection with a slope of only one-half inch in twelve inches.



The Way the Under Side of the Roof Looks When Erected

The illustrations afford a view of the details of construction. Consistent with the underlying plan of this type of building construction, this roof is made by fitting together standard unit sections of pressed steel previously prepared in the factory. The roof is designed for a 40-lb. live load but has been tested to 160 lb. without failure. Weighing but 4½ lb. per sq. ft., it thus makes possible a considerable saving in many cases of the cost of purlins, trusses, columns and foundations required in the larger buildings. The roof accommodates eaves, gables, ridges and gutters, likewise provision for expansion and contraction which takes place in the joints. The connections between units are made simple to afford speed of erection by unskilled labor and with the composition roof applied which is cemented to the steel with roofing pitch, it is claimed that a roof is provided which is not only weather tight but durable. The under side presents a clean, smooth surface that is readily painted. Contrary to the common belief, the steel roof, like other portions of steel buildings, is said to afford heat insulating qualities entirely consistent with efficient building design. This type of construction is a development of the Truscon Steel Company, Youngstown, O.

A New Truck Crane

THE EXTENT to which automobile trucks are being used at present in all manner of construction and material yard work has led the Orton & Steinbrenner Company to design a light-weight general utility crane that is adapted for mounting on this type of carriage, as distinguished from

The Truck Mounted Crane Loading Sand

the familiar railroad car mounting or the caterpillar tractor. The result has been to produce a form of material handling equipment more particularly adapted for conditions requiring quick dispatch from one point to another in the same locality or at points separated by considerable distances.

The crane is a full revolving type machine which can be mounted on any new or second hand truck of five tons' capacity, which has a distance back of the driver's seat of 8 ft. to the center of the rear axle, although the machine is more evenly balanced if this distance is 8 ft. 6 in. Since practically all late models of five-ton trucks provide this distance from the seat to the rear axle, it is possible to equip a truck with the crane with practically no remodeling or rebuilding of the chassis.

In designing the crane consideration was given to the laws of some states which do not permit loads in excess of 10 tons to travel over hard surface roads. To meet this situation, a removable counterweight compartment is provided from

which the ballast necessary to maintain the balance during operation may be dropped out simply by opening the bottom of the compartment. The design contemplates the use of sand for ballast since this is readily obtainable anywhere.

The crane is similar in its construction details to other Orton & Steinbrenner machines with removable bronze bushings on wearing surfaces, with large diameter drums and sheaves to reduce cable wear, with bronze cone frictions and outside band brakes for operating the hoisting drums and for swinging the crane, with all-steel gears. The crane is enclosed by a steel cab and has the operating levers banked on one side in front to give the operator an unobstructed view of the work. The power is furnished by a four-cylinder 37-hp. gas engine which operates double drums in order that in bucket handling work the hoisting can be done with the bucket open or closed. The crane is equipped to handle a one-half or three-quarter yard clam shell bucket and is designed to accommodate a generating set for operating a 36-in. electro magnet for handling scrap iron, etc. Where it is desired to handle structural steel or similar material, a hook and sling handle is used in the place of the bucket. On all ordinary work the automobile driver can also serve as the crane operator, while on railroad work the design is such as to permit the temporary detachment of the crane from the automobile truck for use temporarily out on the line with supply cars, etc.

Central of Georgia Revising Line

FURTHER CONJECTURE regarding long considered plans of the Central of Georgia to engage upon an extensive project of track reconstruction on its Birmingham district was put to rest within the last few weeks with the awarding of five separate contracts, amounting in the aggregate to $3,100,000, for immediate work in this territory. The work will consist of both line and grade revisions and will involve altogether about 133 miles of line of which 48 miles will be new location, all of which will be undertaken to meet the increased traffic in this section.

The Birmingham district extends from Columbus, Ga., to Birmingham, Ala., a distance of 157 miles. On this district the eastbound traffic is about double the westbound and consists in large part of coal, reaching the main line at Henry Ellen, about 16 miles east of Birmingham. The western 130 miles of the district is in a mountainous country, as a result of which the line between Opelika and Birmingham, in particular, is very crooked with numerous adverse grades. The maximum curves are 9 deg. with a large number of 6 deg. curves, while there are maximum grades of 1.5 per cent against traffic in both directions.

In 1908 surveys and estimates were made with a view to reducing the grades to 1.0 per cent westbound and 0.6 per cent eastbound, but the estimated cost was considered prohibitive in view of the light traffic at that time. Since 1915, however, there has been a large and steady growth in the eastbound traffic handled, resulting in much congestion and adding materially to the cost of operation, a situation which led to the making of new surveys and estimates during the past year, and to the recent authorization of the work.

The revision under way will decrease the grade against eastbound traffic to 0.5 per cent compensated, and to 1.0 per cent compensated against westbound traffic. The section extends 133 miles in length, of which 57 miles will remain unchanged, 48 miles will consist of grade revision upon the present alinement and 48 miles will be upon new location. The maximum curves will be reduced to three degrees and all new structures will be of permanent character, while the rail will be of 90 lb. A.R.A. sections, fully tie plated. Because of the amount of new location, the length of line will be shortened 4.11 miles, the total curvature reduced 3,470 deg., the rise and fall reduced 1,050 ft. and the following items, 83 curves, 40 highway grade crossings, 2 railroad grade crossings and 2,430 lin. ft. of wooden trestle, will be entirely eliminated.

A New Ten-Ton Tractor Crane

THE INDUSTRIAL WORKS, Bay City, Mich., has begun the manufacture of a 10-ton crawling tractor crane for general service for the lighter class of material-handling work. One of the chief features of the machine is an independent control of the traveling, slewing and hoisting motions, which permit them to be utilized in a variety of combinations. For instance, the hoisting and slewing motions may be combined in bucket work for operation at high speed. When traveling the boom may be swung in any direction to clear obstructions. Slewing in either direction is accomplished without reversing the engine by means of a double

The Industrial 10-Ton Crane

friction clutch and a train of bevel and spur gears. The slewing brace holds the boom securely with a suspended load in any position while, when operating on uneven ground, this brace is a protection from sudden rotation.

The crane is built for either steam, electric or gasoline power and has two traveling speeds. Reversal of direction is accomplished by reversing the engine while steering is controlled from the operator's platform through friction clutches and brakes negotiating with each tractor belt. Either belt may drive, coast or be held by the brake in any degree to allow as sharp or as wide a turn as desired. The entire steering arrangement is such that the operator can propel and steer the crane independently of all other motions or the position of the boom.

The crane is adapted to travel up steep grades and over rough ground or up inclined skidways for loading on track cars, etc. Other features are the double-hoisting drums which provide automatic control of the bucket during operation. Both drums provide enough rope pull for dredge line and hoisting purposes. Hoisting the bucket open on the auxiliary drum greatly increases the output of the crane and makes its operation much simpler. The levers actuating all motions are conveniently placed in two rows in front of the crane alongside the operator's platform which is located on the right-hand side, affording a full view of the work being done. The tractor shoes are close fitting and operate over adjustable idle sprocket bearings which take up the slack in the tractor belts. Five large size rollers of 25-in. in diam. on each side assist in reducing the traveling friction and keep the bearings up out of the dirt. The crane is suited not only for operating clam shell or dragline buckets, but also for operating electro magnets, hook and block or grapple and is readily converted to a shovel or pile driver.

General News Department

The Northern Pacific has taken out a $15,000,000 group insurance policy for 30,000 employees.

The Interstate Commerce Commission has issued the twelfth supplemental report in connection with its standard time zone investigation modifying previous orders defining the limits of the Eastern and Central time zones so as to include Findlay, Kenton, and Marysville, Ohio, within the first or Eastern zone.

The Western Pacific and the Southern Pacific have completed the double track arrangement between Winnemucca, Nev., and Wells, whereby all eastbound trains will run over the Western Pacific track and all west-bound over the Southern Pacific. The plan was put into effect on August 1. It covers 190 miles.

The Missouri-Kansas-Texas is offering its employees an opportunity to purchase adjustment mortgage five per cent bonds of the road at 56 per cent of the par value. The company will buy the bonds on the open market and will sell them to the employees on a semi-monthly payment plan.

The Interstate Commerce Commission has denied the petition of the New York, Chicago & St. Louis for a modification of the automatic train control order to permit it to make the installation required between Conneaut, Ohio, and Brocton, N. Y., in lieu of the installation required in the commission's order.

The Interstate Commerce Commission has denied the petition of the Reading Company that it be exempted from the operation of the automatic train control order and also a petition of the Galveston, Harrisburg & San Antonio for a modification of the order to permit it to make its installation on a portion of a division.

In the United States District Court at Buffalo, N. Y., on July 22, the Erie Railroad was fined $5,000 for violation of law in extending credit on freight bills for a period exceeding 96 hours. The railroad had been indicted on ten counts, but the government accepted a plea of guilty on one count; and on this the fine was assessed.

At Willow Grove Park, Philadelphia, Pa., on Sunday evening, July 27, a passenger train of the Philadelphia & Reading struck an automobile on a crossing and, besides wrecking the automobile and killing three of its occupants, was itself wrecked, the locomotive being overturned and the engineman being fatally injured. Five other persons were injured.

Ten persons were killed and the same number were injured when a bus carrying 26 persons, mostly children, was driven in front of a New York Central passenger train at Oak Harbor, Ohio, on July 23. The driver halted for an east-bound passenger train, according to witnesses, and started before the train had fully cleared the crossing, and as the bus passed behind the east-bound train it was struck by one moving west.

The centennial of the Baltimore & Ohio Railroad, which will be celebrated in 1927, has been made the subject of a joint resolution in the Legislature of Maryland, under which the governor of the state is authorized to appoint a commission of seven members, to serve without compensation, to co-operate with the railroad company and the city of Baltimore in conducting a suitable celebration. The charter of the railroad company was granted on February 28, 1827.

Quarterly Accident Statistics

The Interstate Commerce Commission has issued a preliminary statement summarizing the railroad accident totals for the three months ending with March, 1924, including a statement, by roads, of the total casualties, in the principal classes, and a summary, by states, of casualties at highway grade crossings. In train accidents in the quarter under review, 4 passengers, 70 employees and 12 other persons were killed, and 674 passengers, 405 employees and 109 other persons were injured; a total of 86 persons killed and 1,188 injured. Adding train service accidents, the total becomes 1,453 killed and 12,980 injured. Including non-train accidents the total is swelled to 1,557 persons killed and 36,928 injured.

Cars and Locomotives Placed in Service

Class I railroads during the first six months this year installed in service 70,874 freight cars, according to reports filed by the carriers with the Car Service Division of the American Railway Association. This was a decrease of 8,366 cars as compared with the number installed during the corresponding period in 1923. The railroads on July 1, 1924, had on order 60,315 freight cars as compared with 96,855 on July 1, 1923, or a decrease of 36,540.

The railroads during the first half of 1924 also installed 1,071 locomotives, as compared with 1,998 during the corresponding period the year before, or a decrease of 927. They also had on order on July 1, 360 locomotives, as compared with 1,902 last year.

Of the cars placed in service 12,319 were installed during the month of June, including 4,607 box cars, 3,653 coal cars and 1,976 refrigerator cars, including those installed by railroad owned private refrigerator companies. The railroads also placed in service during the month 160 locomotives. These figures as to freight cars and locomotives placed in service or on order include new, rebuilt and leased equipment.

Group Life Insurance on the Great Northern

As heretofore noted in these columns, the shopmen of the Great Northern who, under a contract between the Metropolitan Life Insurance Company, the railroad company and the associated organizations of the employees, took out insurance about a year ago amounting to over $6,000,000, are now considering an offer by the insurance company to increase the amounts insured. Under the proposed arrangement the insurance company offers for accidental death $2,000; for loss of both hands, $2,000; for permanent loss of sight of one eye, $1,000, and for the other casualties in the usual proportion; for weekly sick benefits, $20; weekly non-occupational accident benefits, $20. An employee killed by accident, either on or off the job, leaves to his family, under the new arrangement, $4,000. Provision is made also for occupational accident insurance.

In connection with the announcement of the additional offer, the insurance company states that the first year's experience with the plan has been so satisfactory that substantial dividends have been returned. For example, an employee who has paid $19.20 for 12 months' insurance receives a dividend of $3.60, representing the earnings on the premiums which he has paid.

Diesel-Electric Tugboat for the Pennsylvania

The first Diesel-Electric tugboat ever built was recently completed by the Pennsylvania. The steel hull was constructed at the Staten Island Shipbuilding Yards and delivered to the Pennsylvania at its Hoboken marine yards where the propelling machinery was installed and the tug outfitted. The boat, which is known as "P. R. R. Tug No. 16," is now receiving its dock and river trials on the Hudson river and Upper New York bay.

The principal parts of the propelling machinery consists of two Winton Diesel oil-burning engines, each operating a Westinghouse generator to supply current for a 575 hp. motor, turning the screw propeller. The pilot has direct control of the propelling machinery as well as the steering apparatus, and all signals to the engine room are eliminated.

The tug is 105 ft. long and has a 24-ft. beam and draws 12 ft. of water. It will be used for general purposes in New York

Harbor, including the handling of car floats between Jersey City and the various terminals of the Pennsylvania System. It will also be tried out between Cape Charles, Va., and Norfolk, for the purpose of developing tugs of similar design for service between these points.

Railroad Administration Reducing Forces

The United States Railroad Administration, which this week announced final settlements with eleven railroads for the period of federal control, leaving only about half a dozen roads yet to be settled with, has been effecting a gradual reduction of its forces as its liquidation work has proceeded and on July 1 had only 574 employees, as compared with 1,015 on July 1, 1923, and 2,612 at the end of federal control. Of the 574 employed on July 1, 415 were in the office of the comptroller, mostly in the field checking the trustee accounts of the different railroads, and only about 200 were in the Washington offices. The total payroll as of July 1 was only $121,334 a month, as compared with $216,159 the year before and $570,078 at the end of federal control.

Locomotive Inspector Indicted for Perjury

Robert Addison, a locomotive inspector of the Boston & Maine, was indicted in the Federal Court at Albany, N. Y., last May for perjury, in the signing of a report which he had made in January last, wherein he declared that the tubes in locomotive No. 3009 were in good condition. Upon investigation by the Interstate Commerce Commission of the blowing out of one of the boiler tubes while this engine was passing through Hoosac Tunnel, on February 14, when scalding water was discharged into the cab, scalding the engineman and fireman, it appeared that Addison had in regular form certified that the tubes of this engine were in good condition when, in fact, the center arch tube did not extend through the throat sheet sufficiently to permit it to be belled or beaded. The government contends that Addison had himself installed this particular tube and was aware that it was not in safe condition.

Attorney General Stone announces that he intends to urge a speedy trial of this case, deeming it the duty of the Department of Justice to give vigorous support to the Interstate Commerce Commission in its work of promoting the safety of locomotive operation.

Attorney General Stone in his statement refers to the need of additional inspectors for the 76,000 locomotives in the country, a need which has been pointed out by the Interstate Commerce Commission in its annual reports. The penalty for violation of the locomotive inspection law is comparatively small, whereas perjury, if proved in court, may be punished more severely.

It is expected that Addison will be tried at Auburn, N. Y., on October 7 next.

The Department of Justice is said to be in favor of amending the law so as to provide that when railroad inspectors overlook patent defects, they can be adjudged guilty of criminal negligence and the railroad officers held jointly responsible for the negligence of employees.

Rock Island to Hold Tournament

The Chicago, Rock Island & Pacific will hold its first anniversary tournament in Chicago on October 11, incident to the 72nd birthday of the railroad. The tournament will consist of various athletic, musical and other events participated in by Rock Island employees representing the first and second districts. Employees eligible to participate in the tournament are to be chosen by elimination contests or trials on the various divisions of the two districts, the finals to be played by the representatives of the two districts at Chicago on October 11. To be eligible for entry in any of these events it is necessary that the applicant be an employee of the road and have been in the service for six months or more on October 10.

The events will include baseball, tennis, bowling, socker, football, swimming, relay races, track and field events, tug of war, horseshoe pitching and checker contests. In the musical events there will be a contest between the best brass bands of each district and between the best orchestras of each district. In the case of events where teams or groups are contesting silver cups will be awarded as prizes to the winners. A supremacy banner will be given the district credited with the highest score of the tournament. The cups and supremacy banner will remain in the possession of the winners until the 1925 tournament. The winning of the cup or the supremacy banner for three consecutive years will entitle the team or groups winning in the same to retain them permanently. In addition to the supremacy banner, a division banner also will be awarded to the division with representatives who score the highest number of points in the tournament. The division banner will remain in permanent possession of the division winning it each year. Gold, silver and bronze medals will be awarded to successful contestants in the individual events.

Railroad Wages Hold Their Lead Over Those in Other Industries

Railroad wages continue to lead those of manufacturing industries, according to the National Industrial Conference Board, New York City, which has recently investigated the trends of wages, hours and employment of railway labor as a whole from the 1914 period to the end of the first quarter of this year. In the first

The Resplendent C. G. W. Rochester Special

This train, which operates between the Twin Cities and Rochester, Minn., on a non-stop schedule, is luxuriously equipped and bright in its Venetian-red coloring with golden lettering. The locomotive is brilliantly polished. All outside piping is concealed. The wheels are red and the spokes are golden. The driving rods and cylinder heads are polished.

quarter of 1924, the average hourly earnings of all railroad wage earners were 60 cents, which is 136 per cent greater than the hourly earnings in 1914, and 10 cents below the highest peak of 1920. The purchasing power of the weekly earnings of these employees in the first quarter of 1924 was 30 per cent greater than in 1914, showing a slight increase since the second half of 1923. This condition is due to a slight increase in earnings and a slight decrease in the cost of living.

These figures are based on the average number of wage earners on those railroads whose annual revenues total one million dollars a year or over. During the first quarter of 1924, the number of wage earners stood at 1,249,873.

The board made a comparison between the trends of wages for skilled labor in foundries and machine shops and that of skilled shop labor on the railroads. In 1914, the average hourly earnings of both were nearly equal, but by 1920 the railroad group had advanced far ahead. In the first quarter of 1924 the earnings of skilled labor in foundries and machine shops were 108 per cent greater than in 1914, but the railroad skilled shop labor at the end of last year were earning 142 per cent above the 1914 to 1915 level and advanced still further to 72.2 cents per hour in the first quarter of this year. The board's report discusses in detail the rates of wages of railroad workers in relation to their different classes of employment and in relation to the cost of living. Incidentally, it shows the hourly earnings of unskilled railroad workers were 130 per cent greater than at the end of the first quarter of 1924 than in 1914. It shows also that practically all increases and reductions in railroad wages since the termination of federal control were based on the rulings established by the United States Railroad Administration, and that the wages of the train and engine service employees, therefore, have never risen relatively so high as the wages of other classes of railroad labor.

In general, the board states that railroad labor as a whole and two of its principal sub-divisions—skilled shop and unskilled labor —were materially better off early in 1924 than in 1914. It is also shown that the average working week per employee was considerably shorter and the purchasing power of weekly earnings substantially greater. The position of the train and engine service employees, however, was not so advantageous as that of other classes of railroad labor or of railroad labor regarded as a whole.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next Convention, 1923, Los Angeles, Calif. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—John Wright, Westinghouse Electric & Manufacturing Co. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—Grant Williams, 1341 Railway Exchange, Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, October 2 and 3, New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothchild, Room 400, Union Station, St. Louis, Mo. Next convention, 1925, Richmond, Va.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamilton Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating. J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railroad Telegraph Superintendents). W. A. Fairbanks, 30 Vesey St., New York. Next meeting, September 9-11, 1924, Quebec, P. Q.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electric Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Next meeting, Sept. 22, 1924, New Ocean House, Swampscott, Mass.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Next meeting, September 2-4, 1924, Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Exhibit by Railway Supply Manufacturers' Association.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, 1925, Kansas City, Mo.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next annual convention, Oct. 21-23, 1924, Kansas City, Mo. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—A. L. Moorshead, Industrial Engineer, Erie, New York City. Next meeting, May 13, 1925, San Antonio, Texas.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division V.)

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—J. A. Duca, Tool Foreman, C. R. I. & P. Ry., Shawnee, Okla. Annual convention, Sept. 3, 4 and 5, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C. Annual meeting, August 13-15, 1924, St. Francis Hotel, San Francisco, Cal.

AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio. Next convention, Sept. 22-26, Commonwealth Pier, Boston.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Prof. J. H. Dunlap, 33 W. 39th St., New York. Regular meetings 1st and 3rd Wednesdays in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, A. F. Stuebing, Chief Engineer, Bradford Draft Gear Co., 23 W. 43rd St., New York.

AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallers Bldg., Chicago, Ill. Biennial convention, July, 1925, Chicago.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—P. R. Hicks, Room 1146, Otis Bldg., Chicago. Next convention, 1925, Chicago.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, June 17, 1925, Winnipeg, Canada.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Next meeting, October 20-24, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meetings with convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charron St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday, January to November. Interim meetings, 2nd Thursday, February, April, June, Hotel Statler, Buffalo, N. Y.

CHICAGO CLAIM CONFERENCE.—Personal Injury Section. Parks C. Archer, General Claim Agent, Chicago & Alton R. R., 340 W. Harrison St., Chicago. Meets 12:30 p. m., first Monday each month, City Club, 315 Plymouth Court, Chicago.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual meeting, September 23-25, Sherman Hotel, Chicago.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Rookery Bldg., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND STEAM RAILWAY CLUB.—F. L. Frericks, 14416 Adler Ave., Cleveland, O. Meetings, first Monday each month, Hotel Cleveland, Public Square, Cleveland.

DIXIE RAILWAY CLUB.—T. C. Schley, 71 Conti St., Mobile, Ala. Regular meetings, bi-monthly, second and fourth Fridays, Battle House Hotel, Mobile, Ala.

EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C.

FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3rd Friday in month, Room 1414, Manhattan Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual convention, August 19-21, 1924, Hotel Sherman, Chicago. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. B. Hutchison, 6000 Michigan Ave., Chicago. Next annual convention, 1925, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 9-12, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—F. S. Wilcoxen, Edna Brass Manufacturing Company, Cincinnati, Ohio. Meeting with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—See A. R. A., (Division V.)

MASTER CAR BUILDERS' ASSOCIATION.—(See A. R. A., Division V.)

NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1925, Chicago.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, Nov. 11, 1924, Phoenix, Ariz.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: E. R. Cott, Safety Agent, Hocking Valley Ry., Columbus, O.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August, at 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut St., Philadelphia, Pa.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—H. A. Varney, Sunbeam Electric Manufacturing Co., Evansville, Ind. Meeting with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 21-23, Richmond, Va.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va.

RAILWAY SIGNAL ASSOCIATION.—(See A. R. A., Division IV., Signal Section.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18 and 19, Montreal, Canada.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 16-18, 1924, Hotel Commodore, New York. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—J. E. Rubley, Southern Railway Shop, Atlanta, Ga. Meets semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. L. Carrier, Car, Serv. Agent, Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Next convention, September 16-19, 1924. Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Annual meeting, May 23, Edgewater Beach Hotel, Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—Edgar S. Nethercut, 1735 Monadnock Bldg., Chicago, Ill.

Traffic News

The Pere Marquette on July 22 at Manitowoc, Wis., launched the second of its two new car ferries. The boat, the Pere Marquette No. 22, is a sister ship of Perre Marquette No. 21 and the boats give this road seven lake ferries operating out of Ludington, Mich.

New fast freight schedules for citrus fruits of 154 hours or 45 hours less than the present schedule from assembling points in southern California to Chicago, were established on July 20 by the Atchison, Topeka & Santa Fe, the Southern Pacific, the Chicago, Rock Island & Pacific and the Union Pacific.

The Southern Railway has inaugurated the Tennessee-Carolina Automobile Special, a new daily freight train from Cincinnati, Ohio, and Louisville, Ky., to Asheville, N. C., to provide through service for the growing movement of automobiles and related traffic to points in east Tennessee, North Carolina and South Carolina.

The Chicago & Alton in conjunction with the Baltimore & Ohio Chicago Terminal, has established daily through merchandise package car service from Forest Hill station, Chicago, to Texarkana, Ark., by way of Kansas City and the Kansas City Southern. The cars leave Chicago daily at 7:15 p. m., arriving at Kansas City, on the second morning and at Texarkana on the fourth morning.

The shipment of cantaloupes from the Imperial Valley, Calif., to eastern markets has totalled this year 15,000 carloads. During June agents of the state agricultural commissioner's office at El Centro, Calif., discovered and destroyed 49,012 crates of cantaloupes that were held to be immature. These melons contained less than 9 per cent soluble sugar content, the figure that was set at the beginning of the season as the standard requirement for shipment. The quantity of melons destroyed was enough to fill 153 cars.

Sleeping car service will be inaugurated by the Interstate Public Service Company on its interurban line between Indianapolis, Ind., and Louisville, Ky., about August 15. Two limited trains will be added and a slight revision of schedules will be made. The limited now leaving Indianapolis at 11:15 p. m. will not leave until 11:30 p. m. It will include the sleeper, which will be in the traction terminal station at Indianapolis at 9 o'clock. The sleeper will be left at Scottsburg, Ind., where it will be picked up in time to be drawn into Louisville at 7 a. m. With the exception that the north-bound sleeper train which will lie over at Greenwood, Ind., will arrive at 6:30 a. m., the same schedule will apply to that train.

Early Shipment of Coal Urged

The Car Service Division of the American Railway Association has issued a statement calling attention to the fact that the railroads now have nearly 170,000 surplus coal cars immediately available for service but not in use owing to the lack of demand for fuel; that the increase in the prices of farm products is expected to stimulate the movement of crops this year and that the early shipment of coal would do much to make available additional transportation facilities so that the crop movement can be moved expeditiously in the next few months.

Illinois Central Establishes Record in Refrigerator Car Movement

The Illinois Central established in June a record in the movement of refrigerator cars loaded with fruits, vegetables and other perishable foodstuffs. All refrigerator cars on the line were moved an average of 98.88 miles per car per day. The previous record was 97.13 miles per car per day which was established in June, 1922. There were 29 per cent more refrigerator car miles than in June, 1923, with an increase in the average number of refrigerator cars on the system of less than 3 per cent.

The result is due to a specialization in the maintenance of

rapid schedules for special trains carrying perishables. Between January 26 and May 12, the Illinois Central moved 153 special trains of vegetables with a total of 6,146 cars from Baton Rouge, La., to Chicago, the vegetables coming from the district served by the Gulf Coast Lines in the Rio Grande Valley of Texas. The schedule of these special trains from Baton Rouge to Chicago is 63½ hours which provides for a third morning delivery on the Chicago market. Of these 153 special trains 148, or 97 per cent, arrived in Chicago on time.

Between May 2 and May 9 this company moved 109 special trains of fruits and vegetables with a total of 5,622 cars from Jackson, Miss., to Chicago, on a schedule of 53½ hours, 102 trains or 92 per cent arriving in Chicago on time. Between May 12 and 28 this company moved 42 special trains of Tennessee strawberries from Fulton, Ky., to Chicago on a schedule of 28½ hours, all of which arrived in Chicago on time.

Heavy Demand for Grain Cars Anticipated

A statement analyzing the July 1 forecast of wheat production issued by the Department of Agriculture has been sent by L. M. Betts, manager of the closed car section of the Car Service Division, American Railway Association, to railroads and to members of shippers' Regional Advisory Boards with a statement pointing out that roads serving the middle western and northwestern states may reasonably expect a heavy demand for grain cars for immediate shipment after harvest, as has already proved the case in the southwest. While generally speaking the number of cars assembled for grain loading is in excess of last year, Mr. Betts says, the indications from a market and crop standpoint are that every available car will be required to satisfy the demands.

He quotes estimates of a winter wheap crop of 542,551,000 bushels, an increase over June 1 figures of 33,232,000 bushels, and a spring wheat crop of 197,461,000 bushels, an increase over June 1 figures of 13,630,000 bushels. This totals 740,012,000 bushels in 1924 versus 785,741,000 bushels in 1923.

The chief increase over June in winter wheat is in the heavy production belt from Texas north to Nebraska, where a marked increase over last year had already been indicated by the June 1 figures. Kansas shows a particularly heavy improvement in the past month.

The group of states indicating decreased production compared with last year shows some increase over June 1 condition, but not sufficient to change their status in this respect. The spring wheat states also show marked increase in their prospective yield, North Dakota particularly standing out in comparison with last year. South Dakota and Montana now indicate a yield in excess of last year. Oats also show a marked improvement in the past month and a crop of 56,000,000 bushels in excess of last year is predicted. While corn will be less than normal, this crop is not so much of a factor in the early car supply as wheat and oats.

Keystone

The Shohomaru, a Train Ferry of the Japanese Government Railways

Commission and Court News

Interstate Commerce Commission

Reduced Wool Rates Prescribed

The Interstate Commerce Commission has issued a decision as a result of its general investigation into the rates, regulations and practices covering the transportation of wool and mohair from the Pacific coast and intermediate territory to eastern destinations, and from the intermediate territory to and via the Pacific ports, with which were consolidated various other proceedings involving some of the same questions. Commissioners Hall and Potter dissenting, the commission denied the grant of fourth section relief asked by the transcontinental lines on eastbound movements of wool from Pacific terminals and a strip of territory bordering thereon and also ordered new scales of rates on wool which represent reductions. The findings of the commission are summarized as follows:

1. Authority denied transcontinental lines to establish or continue lower rates on wool and mohair from Pacific coast terminals and adjacent points than from intermediate points to eastern defined territories.
2. Respondents' proposed rates found not justified.
3. Present all-rail rates on wool and mohair in the grease, c.l., from western territory of origin to north Atlantic ports found unjust and unreasonable. Reasonable basis of maximum joint rates prescribed. Fourth-section relief authorized from competitive points over circuitous routes to the extent indicated in the report.
4. Westbound rates on wool and mohair in the grease, c.l., to Pacific coast terminals found unreasonable, and reasonable basis of maximum rates prescribed for the future to apply either locally or on shipments destined beyond.
5. Request for joint rates on wool and mohair from interior points via Pacific coast terminals and the Panama Canal to north Atlantic ports denied. Reparation denied.
6. Failure of certain rail carriers to publish either stopping in transit to complete loading arrangements or special concentration rates to apply on shipments of wool and mohair both eastbound and westbound found unjust and unreasonable.
7. Failure of rail carriers to accord transit at Boston, Mass., on wool and mohair originating in the west requiring out-of-line or back-haul movement found not unreasonable or otherwise unlawful.
8. Failure of the Pennsylvania and Baltimore & Ohio Railroads to accord transit in the Philadelphia district on wool and mohair while contemporaneously maintaining transit on wool and mohair at other points on their lines found to be unduly prejudicial. Undue prejudice ordered removed.
9. Desirability for wool-originating carriers to publish consolidated wool tariffs discussed.
10. Request for transit at St. Louis, Mo., on shipments of wool and mohair from points on the Atchison, Topeka & Santa Fe and the Chicago, Milwaukee & St. Paul when destined to north Atlantic ports denied.
11. Request for through routes and joint rates on wool and mohair from points on the Atchison, Topeka & Santa Fe and other wool originating roads and their connections via the Canadian Pacific to Boston, Mass., denied.

State Commissions

The Alabama Public Service Commission on July 25 issued an order calling for a general revision of railroad rules and regulations relating to the concentration, warehousing and reshipment of cotton.

The Public Service Commission of New York has further suspended the proposed increases in prices of commutation tickets on the New York, New Haven & Hartford until January 1; and has appointed a hearing to be held on September 15.

The Public Service Commission of Alabama has authorized the Ensley Southern, a 24-mile line operated by the Southern Railway

Company, to discontinue the operation of passenger trains between Ensley and Maxine, 24 miles, and to close the stations at Maxine and Mulga. The petition to be allowed to discontinue regular freight service between Ensley and Birmingport, 20 miles, was denied.

A complaint of the Brotherhood of Railroad Trainmen that nearly all the railroads in the State of Illinois are violating full switching crew agreements is being considered by the Illinois Commerce Commission. A petition filed by 35 roads asserts that they are neither violating rules of safety nor agreements with the brotherhood; and asks that the trainmen's organization file a bill of particulars supporting its complaint.

Court News

Twenty-eight Hour Law

When a terminal carrier on receiving cars containing live stock which had been confined in the car 34 hours and 20 minutes, conveyed them to the nearest unloading station and caused them to be promptly unloaded, the Circuit Court of Appeals, Seventh Circuit, holds that it was not criminally liable under the Twenty-eight Hour Law, notwithstanding the total confinement of the live stock exceeded 36 hours.—United States v. Terminal Railroad Assn. of St. Louis, 296 Fed. 466.

Order Discontinuing Passenger Trains Sustained

The West Virginia Supreme Court of Appeals refused to suspend an order of the Public Service Commission authorizing discontinuance of certain trains between Thomas and Davis, on the Western Maryland, where the facts showed that the continuance of these trains would be of great pecuniary loss to the company, and that there are ample passenger facilities by means of motor bus lines and taxicabs, over a hard-surfaced road, with no loss of time to the general public, and with negligible additional expense.—Collins v. P. S. C. (W. Va.) 119 S. E. 288.

Mechanics' Lien Acquired During Federal Control

The Circuit Court of Appeals, Ninth Circuit, holds that a mechanic's lien for materials and labor furnished while the road was under federal control in making repairs on the Oregon Short Line passenger station at Nampa, Idaho, pursuant to a contract with the railroad company, and which lien did not arise from the management, use and control by the government was not affected by §206 of the Transportation Act, providing that no execution shall be levied on a carrier's property where the cause of action arose under federal control.—McGill v. O. S. L., 295 Fed. 41.

Hours of Service Act Applies to Yardmaster Who Directs Train Movements

In an action against the Atchison, T. & S. F., for violations of the Hours of Service law, the only question was whether Bray, a yard-master, at Corwith, during the 12 hours he was on duty, used the telephone in a continuously operated office to receive or deliver orders "pertaining to or affecting train movements."

This case was reported briefly in the *Railway Age* of April 26, page 1060. The decision evidently construes the law as putting the communications of a yard-master, directing the movements of slow-moving freight trains on sidings in yards, on an equality with the written orders of a train dispatcher concerning regular high speed main-track movements.

Rules 521 and 522, of the Santa Fe, provide in effect that "all trains or engines without trains (in yards) will be under the control of the yard-master, and all employees' trains or engines will be subject to his instructions."

The federal court for the Northern District of Illinois, being satisfied, from the evidence as to what was actually done by means of the telephone in regard to the movement of trains, and that the use of the telephone by the yard-master is not occasional and exceptional, but is indeed a part of his usual duties, held that the record showed a violation of the statute. And as his office is operated 24 hours a day the nine-hour work day is compulsory.—United States v. Atchison, T. & S. F., 298 Fed. 549.

Labor News

The directors of the Order of Railway Conductors formally endorsed the candidacy of Senator Robert M. LaFollette for president of the United States at a meeting in Cedar Rapids, Ia., on July 18. The vote, according to L. E. Sheppard, president of the organization, was practically unanimous. Senators Howell, Shipstead, Dill and Wheeler, Representative Huddleston and Warren S. Stone, president of the Brotherhood of Locomotive Engineers, were endorsed as vice-presidential candidates.

Advance in Pay for Over-time

Railway express workers were granted pay of time and a half for all over-time work after eight hours in a decision handed down on July 23 by the United States Railroad Labor Board. Under existing rules the employees were given time and one-half for over-time only after nine hours. The petitioning unions were the Brotherhood of Railway & Steamship Clerks, the Brotherhood of Freight Handlers, Express & Station Employees, the Order of Railway Expressmen and the Order of Railway Express Drivers, Chauffeurs and Conductors. The decision also provides for other changes in the rule which are of minor importance.

Brotherhoods Ignore Labor Board Summons

The United States Railroad Labor Board opened a hearing on July 24 on a wage controversy of Western engineers and firemen, but officers of the Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen & Enginemen who were present refused to testify concerning wages and rules on the ground that the board is acting illegally in attempting to hold the hearing. Donald R. Richberg, counsel for the representatives, submitted a prepared statement to the board, outlining the decision, and also submitted a statement of the representatives of employees in engine service on certain western railways replying to the Board's order to appear and testify. His statement, in part, is as follows:

"The employees insist that the board cannot deprive them of their constitutional rights of liberty of contract and their recognized legal right of collective bargaining, and that the interference of the board is unlawful and in aid of the railroad program to delay negotiations. The Labor Board is seeking to force the employees to become parties to the present hearing through the device of summoning them to appear as witnesses in behalf of the employees. The Labor Board has no more power than a court to select witnesses for parties and has no more power to force either railroad or employees to become parties to proceedings before the board.

"The employees refused to submit their controversies to the so-called decision of the board, not only because the action of the board is premature but also because the board is not an impartial tribunal. The chairman has repeatedly and gratuitously made public attacks on the representatives of the employees and upon the policies of their organization, and has disqualified himself for acting as an arbitrator. The cost of submitting controversies to the board is very large and the decision of the board is not binding, the board itself is biased and the employees have the right to refuse to contest the matter before the Labor Board. Therefore the attempt of the board by indirect process to compel them to submit a controversy to the board is an unlawful abuse of the powers of the board and a violation of the constitutional rights of the employees and of their representatives.

"Representatives of the employees of each railroad system again will make a request to each carrier for a conference as provided in the Transportation Act with representatives of the carrier who are authorized to decide the dispute."

The railroads continued their presentation of the case on July 25 and 28, when it was decided to continue the hearing on September 8, in order to secure additional information from the roads. According to a statement made by Chairman Benjamin W. Hooper, the board will use the power conferred on it to secure the presence and testimony of witnesses and there will be no delay in the hearing.

Foreign Railway News

Railway Technical Congress in Berlin

The Association of German Engineers (Verein Deutscher Ingenieure) in close association with the German State Railways will hold a railway technical congress in Berlin on September 22-27 for the discussion of engineering, mechanical and electrical problems and developments. Extensive exhibits of rolling stock and appliances will be on view. Further details may be obtained by addressing the Verein Deutscher Ingenieure (Abt. E. T.), Sommerstrasse 4a, Berlin, N. W. 7, Germany.

British Firm Secures Large Locomotive Order from India

Sir W. G. Armstrong Whitworth & Co., Ltd., the British locomotive builders, have secured an order for 37 heavy main line locomotives for the Bengal Nagpur Railway. These locomotives which are intended for freight traffic are of the 2-8-0 superheated type, with 6-wheeled tenders for a gauge of 5 ft. 6 in., and will weigh in working order about 113 long tons. Competition for this order was said to have been keen.

New Spanish Railway

The military directory of Spain has just announced its intention to proceed immediately with the construction of a line direct from the Bay of Biscay to the Mediterranean. The line will be known as the Ontañeda-Calatayud Railway and will provide through communication between Valencia and Santander. It will be 257 miles in length and of the normal Spanish gage of 1.6 meters (63 inches). At the beginning the line is to be single track, but all tunnels and bridges are to be constructed for double track. Tenders are now open and close on September 10 next. An estimate of the cost has been made at 340,550,203 pesetas.

Buenos Aires Great Southern Proposes Expenditure of $15,000,000

BUENOS AIRES.

The Buenos Aires Great Southern Railway is planning improvements and extensions to involve an outlay of $15,000,000. The concessions, which are to be asked of the Argentinian Congress on the opening of the ordinary sessions, will probably be granted promptly, in which case an extension zone in very productive territory will obtain the transport facilities for which its inhabitants have been waiting for the past twenty years. In 1904 a concession to run a line through this territory was granted to other interests but as the holders have never made use of it the concession has automatically lapsed. At any time during the last fifteen years the B. A. G. S. was willing to undertake the work but the concession referred to made such a course impossible. The projected extension will be approximately 190 miles in length.

In addition to the extension above referred to, the Great Southern will ask Congress for a concession to construct another line from Napoleofu to Loberia thus completing the opening up of the territory so long deprived of the railway communication it so badly needed. Once the concessions are granted work will be undertaken without delay with a view to completion within the period of 30 months.

Meeting of the Pan-American Railway Committee

The Pan-American Railway Committee, reorganized by the governing board of the Pan-American Union in accordance with the terms of a resolution adopted at the Fifth International Conference of American States, held in Santiago, Chile, in 1923, met for the first time at the Pan-American Union, Washington, D. C., July 7. The meeting was attended by S. M. Vicuña, of Chile; F. P. de Hoyos, of Mexico; and C. M. Pepper, of the United States. The director-general of the Pan-American Union, L. S. Rowe, was also present.

The committee adopted a resolution expressing appreciation of the work accomplished by the original committee and of the efficient manner in which it had performed its labors. A resolution was also approved requesting the Pan-American Union to obtain all the available information from the governments of Latin-America relative to railways in the respective countries, this information to be made the basis of a report to the committee at a meeting to be held in 1925, possibly at Buenos Aires, Argentina.

One of the first subjects that will receive the consideration of the committee is that of the route of the railway that shall unite New York and Buenos Aires. The original report of the Intercontinental Railway Commission, created by the First International Conference of American States, recommended that the line, after passing through Mexico and Central America, should traverse the western highlands of South America until it reached southern Peru, where it should turn southeastward through Bolivia and Argentina. Within recent years, however, considerable attention has been given to plans for a line passing east of the Andes and avoiding the mountainous regions.

The route originally mapped out by the Pan-American Railway

P. & A.

Committee Representing the Pan-American Union and Railways of South America Which Met in Washington to Discuss Plans for a Pan-American Railway

Committee called for the construction of a line from New York to the Mexican border, through the Republics of Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia and Argentina to Buenos Aires, with extensions from the main line to those countries not in the direct path of the railway. Of this distance of approximately 10,116 miles, 6,696 miles will have been built upon completion of the section now under construction between Atocha and Villazon, in Bolivia, leaving 3,420 miles unfinished. The greatest gap in the system is in the region between Panama and Lake Titicaca, a boundary lake between Peru and Bolivia, where approximately 2,820 miles yet remain to be built. This territory is very mountainous, making it extremely difficult to construct railways, and it is for this reason that changes in the original route have been proposed. According to these projects, which differ only in minor details, the railroad constructed over the new route would avoid the mountainous region along the Pacific coast of South America, and traverse the interior passing through western Brazil and entering Bolivia on the northeast.

China Notes

PEKING.

The breaking down of the negotiations between the Chinese government and the representatives of Soviet Russia, for the time being at least, seems to have quieted down the agitation along the Chinese Eastern railway. About a month ago the Chinese residents of Harbin conducted a street demonstration demanding the removal of General Manager Ostroumoff. Exception had been taken some time previously to certain theatricals staged under his patronage in which the Chinese participants were made the butt of ridicule. A few days after the street demonstration,

farmers raided the railway's agricultural experiment station at Andah, drove off the Russian staff and destroyed seed beds and much experimental work. A recrudescence of *hung hutze* (bandit) activities along the eastern portion of the line is also reported.

During the latter part of April a conference of the traffic managers of the government railways was held in the Ministry of Communications to consider improvements in train schedules and car service. The conference recommended more stringent enforcement of demurrage rules (six hour limit) and the rapid installation of selector telephone service between stations together with the installation of telephone train control system to supplement the "staff" system. At present the initiative for prompt movement of trains through stations rests with the stationmaster and the train guard, naturally, with indifferent results. Furthermore, there can be no co-ordination of train service between the different lines at junction points unless advance information of arrivals can be obtained and be relied upon. The Ministry also contemplates the formation of a Transportation Administration under the jurisdiction of the Director of Railways to handle all matters of through timetables, car distribution between lines, car records, daily reports of train movements, car loadings, engine failures and interline movements generally.

No progress has been reported by the Peking Suiyuan Railway toward the solution of its financial problem, but the native press reports that a domestic loan of $800,000 is to be raised to extend the line beyond Paotou and revenues of certain stations are being pledged as security.

The rivalry between the various military chieftains may possibly bring with it a revival in railway construction. Negotiations are known to be under way for the extension of the Taokow-Chinghua line easterly to a junction with the Tientsin-Pukow line near Tsinan and westerly to the Yellow river. The western extension was agreed upon four years ago, but due to local disputes nothing came of it. The eastern extension would go far to assure Wu Pei Fu control of the entire Yellow river plain and strengthen his position in Shantung, his native province. In addition it would deliver a splendid volume of traffic to the Shantung Railway, a traffic which is very necessary if that line is to pay off its treasury notes within fifteen years without showing a degree of efficiency unknown on Chinese managed railways. The Peking syndicate, builder and principal shipper over the Taokow-Chinghua line, is the financial agency. As this syndicate under its original concession possesses the right to extend the line to an outlet on deep water, it is believed that the proposed agreement will not constitute a violation of the Consortium agreement. It is known also that Wu Pei Fu is trying to influence the Belgian group to extend the Lung-Hai Railway to Sianfu, the capital of Shensi, without delay. Construction was expected to pause at Shenchow, on the Yellow river, when reached this summer.

Max Epstein, vice-president of the General American Car Company and F. de St. Phalle, vice-president of the Baldwin Locomotive Company, are in Peking.

The commission sent by the Ministry of Communications to investigate the affairs of the Kiao-Tsi (Shantung) Railway has returned to Peking and is preparing its report. While the investigation was under way the managing director of the line was changed. The new appointee is without railway experience, his life having been spent in consular and educational work. He is the personal friend of Kao En Hung, formerly Minister of Communications but now the new governor of Tsingtao, and a Wu Pei Fu adherent. His first official act of importance was to arrest the chief accountant, who has figured so prominently in the struggle to prevent the funds of the line from being diverted to non-railway purposes, and to appoint in his stead a man without either railway or accounting experience. It is understood that the Ministry of Communications considers this action in the nature of a personal affront from Kao En Hung to Admiral Wu Yu Lin, the Minister. But it has the additional significance that Marshall Wu Pei Fu is serving notice to President Tsao K'un that Shantung and the Shantung Railway are to be considered as laying within the sphere of influence claimed by Wu. The native press a few days later broke out with stories of a new coalition of military leaders to challenge Wu Pei Fu's position, but the story does not grow.

The publication of statistics for other railways in China in the same volume with those of the government railways is causing some pertinent comparisons to be made. One native paper asks if it is the absense of *likin* which permits the South Manchurian to haul more ton kilometres of freight than all of the government railways combined, although it has only one-sixth as much line.

Equipment and Supplies

Locomotives

THE F. C. AL PACIFICO OF COSTA RICA has ordered 2 Mogul type locomotives from the Baldwin Locomotive Works.

Freight Cars

THE WESTERN FRUIT EXPRESS is inquiring for 600 underframes.

THE ATLANTIC COAST LINE is inquiring for 200 phosphate cars of 50 tons' capacity.

THE NEW YORK, ONTARIO & WESTERN is inquiring for 6 steel underframes for caboose cars.

THE CHESAPEAKE & OHIO is inquiring for 1,000 hopper bottom gondola car bodies of 70 tons' capacity.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 200 flat cars from the Pullman Company.

THE NEW YORK CENTRAL has ordered 60 express refrigerator cars from the Merchants Dispatch Transportation Co.

THE MANILA RAILROAD has ordered 30 flat cars of 30 tons' capacity, from the Koppel Industrial Car & Equipment Co.

THE GARY TUBE COMPANY is inquiring for 8 steel, side-dump cars of 70 tons' capacity and 4 flat cars of 70 tons' capacity.

THE COLOMBIA RAILWAY & NAVIGATION CO., London, England, is inquiring for 120 flat cars for use in Colombia, South America.

THE BUFFALO CREEK has ordered 30-yard extension side dump cars. for ash service, at Buffalo, N. Y., from the Clark Car Company.

THE CADDO CENTRAL REFINING COMPANY, New York, has ordered 2 tank cars of 8,050 gal. capacity from the Standard Tank Car Company.

THE BELL OIL & GAS CO., Tulsa, Okla., has given an order to the Standard Tank Car Company for fabricating 5 insulated tank cars of 8,050 gal. capacity.

THE BANGOR & AROOSTOOK is at present considering the purchase of material to build 50 flat cars in its shops at Derby but no definite decision has yet been reached.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA, reported in the *Railway Age* of July 19 as having placed an order for 50 banana cars, has ordered this equipment and 20 flat cars from the Magor Car Corporation.

Passenger Cars

THE INTERBOROUGH RAPID TRANSIT COMPANY will buy through the Rapid Transit Subway Construction Company 150 subway cars.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 4 coaches and 2 combination baggage and mail cars from the Pullman Company.

Iron and Steel

THE SOUTHERN PACIFIC has given an order to the Tennessee Coal, Iron & Railroad Co. for 3,500 tons of rail.

THE UNION PACIFIC has ordered 570 tons of structural steel for a viaduct at Kansas City, Mo., from the American Bridge Company.

THE GREAT NORTHERN is inquiring for 3,500 tons of structural steel for an ore dock, also for 520 tons of structural steel for ore spouts.

THE WABASH has ordered 335 tons of structural steel for grade separation work at Detroit, Mich., from the American Bridge Company.

THE WESTERN PACIFIC has ordered 150 tons of structural steel for a bridge at Oakland, Cal., from the Moore Shipbuilding Company.

THE NORFOLK & WESTERN, reported in the *Railway Age* of July 19 as inquiring for 47,500 tons of rail, has placed orders for 34,000 tons of 130-lb. rail, with the Carnegie Steel Company and for 13,400 tons of 100-lb. rail, with the Bethlehem Steel Company.

Machinery and Tools

THE NORFOLK & WESTERN has placed an order for 3 axle lathes.

THE MISSOURI PACIFIC has placed an order for a 48-in. car wheel borer.

THE NORFOLK & WESTERN has placed an order for a 6-in. spindle, horizontal floor borer.

THE ATCHISON, TOPEKA & SANTA FE has placed an order for a combination journal turning and axle lathe.

Track Specialties

THE TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS is inquiring for 2,000 tons of rails.

THE BALTIMORE & OHIO is inquiring for requirements of spikes and bolts for the second half of 1924.

THE ST. LOUIS-SAN FRANCISCO has placed an order for 5,000 kegs of spikes and 2,000 kegs of bolts.

THE TEXAS & PACIFIC is inquiring for 18,000 tons of rails for January, April, July and October, 1925 delivery.

THE LOUISVILLE & NASHVILLE is inquiring for 12,000 kegs of spikes, 850 kegs of bolts and a quantity of bars.

THE GREAT NORTHERN is receiving bids for 3,250 angle bars for 130-lb. rail, 26,800 angle bars for 100-lb. rail, and 21,000 angle bars for 90-lb. rail. Bids are also being received for 106,000 track bolts and for 3,000 tie plates.

Signaling

THE MISSOURI PACIFIC has completed the equipping of 25 additional freight and passenger locomotives with the National Safety Appliance Company's automatic train control device. These locomotives are in regular freight and passenger service between Kansas City, Mo., and Hoisington, Kans.

Yards Near Old Main Station, Copenhagen, Denmark

Supply Trade News

A. W. Dorsch, field superintendent of **S. F. Bowser & Co.**, with headquarters at Ft. Wayne, Ind., has resigned to engage in other work.

The Morse Engineering Company, St. Louis, Mo., has been appointed exclusive territorial selling agents for the **Ramsey Chain Company,** Albany, N. Y.

The Thermal Efficiency Company, Scarritt building, Kansas City, Mo., has been appointed district representative in western Missouri and Kansas for the **Conveyors Corporation of America,** Chicago.

J. W. Selzer, representative of the M. L. Shepard Lumber Company, with headquarters at Chicago, has been appointed representative of **J. E. Morris Company,** Chicago, with headquarters at Chicago.

B. W. Beyer, Jr., sales engineer of the Union Special Machine Company, Chicago, has been appointed district sales engineer of the **Industrial Works,** Bay City, Mich, with headquarters at New York.

H. C. Breident, contracting engineer of the **Ft. Pitt Bridge Works,** Chicago, has been appointed chief contracting engineer, with headquarters at Pittsburgh, Pa., and will be succeeded by **E. K. Adams,** with headquarters at Chicago.

F. E. Mills, general credit manager of the **Wayne Tank & Pump Company,** with headquarters at Ft. Wayne, Ind., has been appointed assistant treasurer, with the same headquarters. **C. L. McDavitt,** former European financial manager, with headquarters at Paris, France, has been appointed office manager, with headquarters at Ft. Wayne, Ind.

H. M. Richards has been appointed district manager of the **American Rolling Mill Company,** Middletown, Ohio, in charge of its Cleveland district office at 1408 B. F. Keith building. For a number of years Mr. Richards was located at the home offices, and in recent years, at the Pittsburgh district office. **J. T. Hagan,** of Cleveland, is associated with Mr. Richards in his new work.

The Worthington Pump & Machinery Corporation, New York, has placed a repeat contract with the Austin Company, Cleveland, Ohio, for the construction of a new unit at its Buffalo branch plant. The contract calls for a pattern storage building 80 ft. by 200 ft., two stories high. The construction and all purchases will be handled through the Cleveland office of the Austin Company.

The Buffalo, N. Y., office of the **Cutler-Hammer Mfg. Co.,** in the Ellicott Square building, which was formerly a part of the eastern district, has been made a part of the central district, of which **A. G. Pierce** is general district manager, with headquarters at Pittsburgh. The central district includes the territories covered by the Buffalo, Pittsburgh, Cleveland and Cincinnati offices. **B. A. Hansen** is manager of the Buffalo office.

The McMyler Interstate Company, Cleveland, Ohio, has completed negotiations for the purchase of the **Industrial Works,** Bay City, Mich., manufacturers of wrecking and locomotives cranes, subject to the approval of the stockholders of both companies. At a special meeting of the stockholders on August 22, a plan will be offered to increase the capital stock from 30,000 to 250,000 shares of no par value. The Bay City plant will be kept in operation as the unit of the company.

The Chicago Union Station Company has placed an order with the **U. S. Gypsum Company,** Chicago, for 6,000 tons of Gypsum wall plaster, which is the largest single order ever placed for a single construction job. Three kinds of U. S. Gypsum Company plaster are included in the order. Bondcrete will be used wherever concrete is to be plastered in the

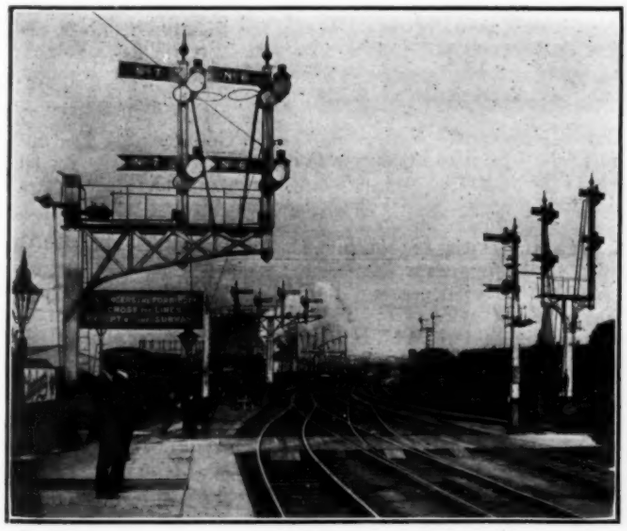
station. On all other walls the company's fibre cement plaster will be used for the base coat. Gaging plaster will be used for the finish coat throughout the building.

The acquisition of additional plants by the **Link Belt Company,** Chicago, and the extension of its lines and business during the past five years have necessitated changes in the organization. The chairman of the board was made the chief executive officer of the company and an executive committee of four was created to act in an advisory capacity to the officers. **Charles Piez,** president, was elected chairman of the board and chairman of the executive committee. **Alfred Kaufmann,** second vice-president, was elected president and will have the general direction and supervision of operations and sales. **Staunton B. Peck,** retains the position of senior vice-president and directs and supervises operation and sales of the eastern district. **A. C. Johnston,** formerly in charge of the operations and sales of the Chicago and Western district, has been promoted to second vice-president in charge of operations and sales in the Western district. **Humphrey J. Kiely,** who has had charge of the company's foreign business, as well as the domestic business centering in the New York district, has been elected third vice-president and continues in charge of exports and sales in the New York district. Mr. Kaufmann has been with the Link Belt Company for 24 years beginning in the engineering department and moving successively to the construction department, the general office as assistant to the president, the managership of the Philadelphia plant and to the position of vice-president in charge of the company's Indianapolis operations. For the present, Mr. Kaufmann's headquarters will be at Indianapolis, Ind.

Trade Publications

MANGANESE STEEL CASTINGS.—The American Manganese Steel Company has issued catalog No. 3 describing and illustrating manganese steel castings used in contractors' equipment. Under this heading are included: complete dippers for steam shovels, teeth and other parts of such dippers, dredge buckets, wearing parts for gyratory, jaw and roll crushers, screens for quarry and mine operations, conveyor and power chains, elevating buckets, sprockets, gears and pinions. Unusual pains have been taken to present the matter in a lucid form and a large number of illustrations have been used.

THE SOUTHEASTERN SECTION of the Order of Railway Conductors held a three-days' convention at Atlanta, Ga., on July 24, 25 and 26.



Ewing Galloway

Yard at Bristol, England

Railway Construction

AMERICAN RAILWAY EXPRESS.—This company is asking for bids on one-story brick express buildings at Newport, Ark., and Camden.

BALTIMORE & OHIO.—This company has awarded to the Chicago Bridge & Iron Works a contract for furnishing and erecting a 100,000 gal. elliptical bottom, all-steel locomotive service tank at Stone House Cove, Curtis Bay, Maryland.

BOSTON & ALBANY.—This company has awarded a contract to the New England Construction Company, Springfield, Mass., for the reconstruction of a highway bridge at Kinderhook, N. Y.

CENTRAL OF NEW JERSEY.—This company has awarded to the Chicago Bridge & Iron Works a contract for furnishing and erecting a 50,000 gal. elliptical bottom, all-steel locomotive service tank to be erected at Raritan, N. J.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has awarded a contract to the T. S. Leake Construction Company, Chicago, for the extension of a five-stall roundhouse at Forty-seventh street, Chicago.

GRAND TRUNK.—This company will close bids on August 4 for the construction of a two-story brick office building and a one-story freight house at Port Huron, Mich., to cost approximately $75,000.

NORTHERN PACIFIC.—This company has awarded a contract to Charles Skooglund, St. Paul, Minn., for the construction of a reinforced concrete power plant and coal trestle at Brainerd, Minn.

OWENSBORO, ROCKFORT & CHICAGO.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Owensboro, Ky., to Elnora, Ind., 84 miles. E. T. Franks, Owensboro, Ky., president.

PENNSYLVANIA.—This company has awarded a contract to the Carmichael-Cryder Company, St. Louis, Mo., for the elimination of a grade crossing at Lafayette street, Fort Wayne, Ind., to cost approximately $75,000. The company has also awarded a contract to Milo R. Hauke, Cincinnati, Ohio, for the construction of a new freight station at Court street, that city, to cost approximately $150,000.

READING.—This company has, in connection with the reconstruction of a bridge over a highway north of Perkasie, Pa., on its Bethlehem branch, awarded a contract to S. B. Butchler & Company, Newark, N. J., for the grading and masonry, and to Martin & Breen, Inc., Philadelphia, for the waterproofing.

SAN BENITO & RIO GRANDE.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from Santa Maria to Monte Cristo, Tex., 30 miles.

ST. LOUIS, BROWNSVILLE & MEXICO.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension from Lyford to Edinburg, Tex., 28 miles.

ST. LOUIS-SOUTHWESTERN.—This company contemplates the erection of a brick station at Fordyce, Ark.

SEABOARD AIR LINE.—This company has awarded a contract to the Elliott Building Company, Hickory, N. C., for the construction of a combination freight and passenger station at Cherryville, N. C.

UNION PACIFIC.—This company has awarded a contract to the Utah Construction Company for the construction of a branch from Rogerson, Idaho, to Wells, Nevada.

WESTERN PACIFIC.—This company has awarded a contract for the construction of a 10-stall concrete enginehouse with machine shop and storehouse at Stockton, Calif.

Railway Financial News

AMERICAN RAILWAY EXPRESS.—*Directorship.*—The Interstate Commerce Commission has dismissed the application of James S. Alexander for authority to hold the position of director of the American Railway Express Company, the American Express Company and the American Express Company, Incorporated, on the ground that neither of these companies is a carrier within the meaning of that term as used in section 20a of the Interstate Commerce Act, and that Mr. Alexander holds no positions with any carrier subject to section 20a except the position of director of the Southern Pacific Company.

BESSEMER & LAKE ERIE.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, in which it places the final value for rate-making purposes at $36,501,288 for the property used, including $25,500,000 for the Pittsburgh, Bessemer & Lake Erie, operated under lease. The outstanding capitalization as of valuation date was $8,180,000 and the investment in road and equipment as stated on the books was $10,377,262, which the report readjusts to $10,414,762. The cost of reproduction new of the property owned is reported as $11,156,081 and of the property used as $39,979,488. The cost of reproduction less depreciation is reported as $8,915,916 for the property owned and $32,091,042 for the property used.

CANADIAN NATIONAL RAILWAYS.—*Issues Sold.*—A syndicate headed by Dillon, Read & Co. has sold $20,000,000 three-year 4 per cent notes, guaranteed unconditionally principal and interest by the government of Canada, at 98⅞, to yield 4.40 per cent. The same group has sold $9,375,000 Canadian National one to fifteen-year serial 4½ per cent equipment trust certificates, to yield from 4 per cent to 4.75 per cent.

CAROLINA, CLINCHFIELD & OHIO.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1917, in which the final value for rate-making purposes is placed at $36,036,000 for the property owned and $36,595,514 for the property used. The outstanding capitalization as of valuation date was $61,922,000 and the investment in road and equipment as stated on the books was $56,085,753, which the report readjusts to $55,085,753. The cost of reproduction new is reported as $37,415,759 for the property owned and $37,900,978 for the property used. The cost of reproduction less depreciation is reported as $33,312,867 for the property owned and $33,770,640 for the property used.

CENTRAL OF NEW JERSEY.—*Annual Report.*—The annual report for the year ended December 31, 1923, shows a net income of $625,412 as compared with $2,614 in 1922. A selection of the principal items in the income account follow:

	1923	1922	Increase or Decrease
Merchandise revenue	$26,096,912	$22,939,947	$3,156,965
Bituminous coal	3,874,600	3,692,300	182,300
Anthracite	14,064,247	9,885,617	4,178,630
Passenger	9,437,463	9,061,949	375,513
Total operating revenues	57,383,653	49,488,471	7,895,182
Maintenance of way and structures	5,660,110	5,530,944	129,166
Maintenance of equipment	17,087,290	12,973,255	4,114,036
Traffic	459,050	409,850	49,200
Transportation—rail line	23,663,630	21,603,808	2,059,822
General	1,288,800	1,286,970	1,830
Total operating expenses	48,550,289	42,197,422	6,352,866
Net operating revenues	8,833,365	7,391,049	1,542,315
Railway tax accruals	3,791,767	3,550,884	240,883
Net railway operating income	4,583,236	3,375,154	1,208,082
Total non-operating income	2,151,258	2,525,392	—374,133
Gross income	6,734,494	5,900,545	833,949
Total deduction from gross income	6,109,082	5,897,931	211,151
Net income	625,412	2,614	622,798

CHESAPEAKE & OHIO.—*Lease of Subsidiaries.*—This company has applied to the Interstate Commerce Commission for authority for the acquisition under lease and operation of the Ashland Coal & Iron, the Long Fork and the Millers Creek and any necessary authority to assume obligation and liability in respect of certain of their securities.

CHICAGO GREAT WESTERN.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, placing the final value for rate-making purposes at $47,259,442 for the property owned and $54,065,078 for the property used, including that leased from the Mason City & Fort Dodge and others. The outstanding capitalization as of valuation date was $114,961,415 and the investment in road and equipment as stated on the books was $110,795,628, which the report readjusts to $73,668,724. The cost of reproduction new is reported as $48,674,236 for the property owned and $69,748,877 for the property used. The cost of reproduction less depreciation is reported as $37,723,200 for the property owned.

CHICAGO, PEORIA & ST. LOUIS.—*Change in Receivership.*—William Cotter of St. Louis, Mo., has been appointed sole receiver for the Chicago, Peoria & St. Louis, by Circuit Judge E. S. Smith of Springfield, Ill. Mr. Cotter has been joint receiver with Bluford Wilson of Springfield, who died recently.

CHICAGO, ROCK ISLAND & PACIFIC.—*Bonds.*—This company has been authorized by the Interstate Commerce Commission to pledge and repledge from time to time $7,934,000 of first and refunding mortgage 4 per cent bonds as collateral for short term notes. The company had asked authority to pledge $43,715,000 of the bonds but as all but the amount named has already been pledged the commission limited its authorization.

DELAWARE, LACKAWANNA & WESTERN.—*Six Months Guaranty.*—The Interstate Commerce Commission has issued a final certificate placing the amount of this company's guaranty for the six months period following the expiration of federal control at $7,169,804, of which $45,304 was still to be paid on the final certificate.

DETROIT TERMINAL.—*Excess Income Reports.*—The Interstate Commerce Commission has announced a hearing to be held on September 22 before Examiner Law regarding this company's excess income reports, which show a valuation as of 1920 of not less than $7,000,000 and as of 1923 of not less than $9,000,000 and no excess net railway operating income.

DULUTH & IRON RANGE.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1919, placing the final value for rate-making purposes of the property owned at $28,394,371 and that of the property used at $28,583,609. The outstanding capitalization as of valuation date was $14,651,000 and the investment in road and equipment as stated on the books was $29,877,645, which the report readjusts to $28,597,349. The cost of reproduction new of the used property is reported as $30,024,232 and the cost of reproduction less depreciation as $23,758,540.

DULUTH, MISSABE & NORTHERN.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1919, in which it places the final value for rate-making purposes at $42,152,300 for the property owned and $45,780,030 for the property used. The outstanding capitalization as of valuation date was $14,853,500 and the investment in road and equipment as stated on the books was $42,210,491, which the report readjusts to $42,213,111. The cost of reproduction new of the property used is reported as $33,892,534 and the cost of reproduction less depreciation as $29,189,485.

GREAT NORTHERN.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $4,500,000 of 4½ per cent equipment trust certificates which it is proposed to sell at not less than 95.

INTERNATIONAL-GREAT NORTHERN.—*Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $2,400,000 of 6 per cent secured gold notes, due March 1, 1930, in lieu of notes previously held by the director general of railroads, but sold to White, Weld & Co., and to pledge as security therefor $2,750,000 of first mortgage bonds.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, in which it places the final value for rate-making purposes of the property owned at $104,883,525 and that of the property used at $104,737,607. The outstanding capitalization as of valuation date was $125,516,700 and the book investment in road and equipment was $116,953,635, which the report readjusts to $109,552,094. The cost of repro-

duction new of the property used is reported as $109,590,787 and the cost of reproduction less depreciation as $89,278,509.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, in which it places the final value for rate-making purposes at $45,624,106 for the property owned and $69,262,133 for the property used, including the leased line of the Western & Atlantic. The outstanding capitalization as of valuation date was $27,132,325 and the investment in road and equipment as stated on the books was $36,496,339, which the report readjusts to $30,934,661. The cost of reproduction new of the property owned is reported as $48,828,074, and of the property used as $64,383,524. The cost of reproduction less depreciation is reported as $37,587,387 for the property owned and $49,918,143 for the property used.

NEW ORLEANS & NORTHEASTERN.—*Annual Report.*—The annual report for the year ended December 31, 1923, shows a balance of income over charges of $1,015,195 as compared with $66,344 in 1922. The income statement compares as follows:

	1923	1922
Freight revenue	$5,121,105	$3,914,218
Passenger revenue	1,054,950	943,358
Total operating revenues	6,887,849	5,506,622
Maintenance of way and structures	956,602	849,091
Maintenance of equipment	1,431,919	1,242,809
Traffic	143,242	130,101
Transportation	2,515,817	2,533,385
General	187,590	190,105
Total operating expenses	5,284,142	4,996,606
Net revenue from operations	1,603,707	510,017
Taxes	592,890	433,841
Operating income	874,101	32,260
Gross income	1,505,127	565,841
Total deductions	489,931	499,496
Balance of income over charges	1,015,195	66,344
Dividend of 6 per cent on common stock	360,000	*
Balance carried to Profit and Loss	655,195	66,344

* Dividend of $360,000 for 1922 charged to Profit and Loss.

NEW ORLEANS GREAT NORTHERN.—*Annual Report.*—The annual report for the year ended December 31, 1923, shows a net income for the year of $219,554 as compared with $186,570 in 1922. The income account compares as follows:

	1923	1922	Increase or Decrease
Total operating revenues	$2,841,010	$2,547,750	$293,260
Total operating expenses	1,926,297	1,701,012	225,285
Net operating revenues	914,713	846,739	67,975
Less uncollectible railway revenues and taxes	198,057	183,750	14,307
Operating income	716,656	662,989	53,668
Additions to income	102,343	78,323	24,020
Gross corporate income	818,999	741,312	77,688
Deductions from income	599,445	554,742	44,704
Income for year	219,554	186,570	32,984

PENNSYLVANIA.—*Bonds.*—The Northern Central has applied to the Interstate Commerce Commission for authority to issue $8,300,000 of general and refunding mortgage 5 per cent bonds; the Pittsburgh, Youngstown & Ashtabula for authority to issue $2,000,000 of first general mortgage 5 per cent bonds, and the Connecting Railway for authority to issue $1,545,000 first mortgage 5 per cent bonds, all to be delivered to and guaranteed by the Pennsylvania.

PEORIA & PEKIN UNION.—*Bonds Sold.*—Taylor, Ewart & Co., the Continental & Commercial Trust & Savings Bank, and Halsey, Stuart & Co. have sold $3,200,000 first mortgage 5½ per cent, series A, bonds, due in 1974, at par, and interest to yield 5.50 per cent.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—*Tentative Valuation.*—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, in which it places the final value for rate-making purposes at $146,989,781 for the property owned and $184,131,934 for the property used. The outstanding capitalization as of valuation date was $135,884,538 and the investment in road and equipment as stated on the books was $157,139,762, which the report readjusts to $152,313,378. The cost of reproduction new is reported as $149,082,138 for the property owned and $175,916,657 for the property used. The cost of reproduction less depreciation is reported as $114,232,604 for the property owned and $135,874,764 for the property used.

ST. LOUIS, IRON MOUNTAIN & SOUTHERN.—*Bonds Sold.*—Dillon, Read & Co. and Hemphill, Noyes & Co. have sold at 85 and interest, to yield about 6.25 per cent, $5,000,000 St. Louis, Iron Mountain & Southern (Missouri Pacific System), River and Gulf Divisions first mortgage 4 per cent bonds, due May 1, 1933. The first and refunding mortgage of the Missouri Pacific provides for the retirement of these bonds at maturity.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Lake Erie & Western Railroad Company	$700,000
Toledo, St. Louis & Western Railroad Company	150,000
Waterloo, Cedar Falls & Northern Railway Company paid Director General	500,000
Atlanta Terminal Company paid Director General	5,000
Chesapeake & Ohio Railway Company paid Director General	7,000,000
Texas & Pacific Railway Company paid Director General	1,400,000
Hocking Valley Railway Company paid Director General	700,000
Chartiers Southern Railway Company paid Director General	1,200,000
SHORT LINES	
Springfield Electric Railway Company	5,100
White Sulphur Springs & Yellowstone Park Railway Company	3,000
St. Louis & Hannibal Railroad Company	1

The payment of these claims on final settlement is largely made up of balance of compensation due, but includes all other disputed items as between the railroad companies and the administration during the 26 months of federal control.

Dividends Declared

Cleveland & Pittsburgh.—7 per cent guaranteed stock, 1¾ per cent, quarterly; special guaranteed, 1 per cent, quarterly; both payable September 1 to holders of record August 9.

Hudson & Manhattan.—Preferred, 2½ per cent, payable August 15.

Mine Hill & Schuylkill Haven.—$1.50, payable August 1.

Trend of Railway Stock and Bond Prices

	July 29	Last Week	Last Year
Average price of 20 representative railway stocks	71.54	71.40	57.80
Average price of 20 representative railway bonds	89.03	88.63	82.23

Ewing Galloway

Railway Officers

Executive

P. E. Odell, general manager of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been elected vice-president and general manager, with the same headquarters.

Financial, Legal and Accounting

W. D. Steele has been appointed district claim agent of the St. Louis-San Francisco, with headquarters at Monett, Mo., succeeding E. M. Carr, transferred.

Mechanical

J. T. St. Clair, whose promotion to engineer of car construction of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, was reported in the *Railway Age* of July 12, was born in Michigan and graduated from the Engineering department of the University of Michigan, with degrees in both mechanical and electrical engineering. He entered the employ of the American Car & Foundry Company in 1899, and after several years in their shops, was promoted to consulting engineer, with headquarters at St. Louis, Mo. In addition to his duties in connection with the design and construction of cars, Mr. St. Clair was also engaged in the lay-out of car shops and their equipment and the testing of machinery installed. During the war he was a captain in the Engineering division of the Ordnance department in charge of the design and construction of railway mounts for heavy artillery. Mr. St. Clair entered railway service in 1923 as acting engineer of car construction of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, and he remained in that position until his recent promotion to engineer of car construction.

J. T. St. Clair

Operating

F. D. Hunt has been appointed general manager of the Willamette Valley Southern, with headquarters at Oregon City, Ore.

J. L. Stacer, superintendent of the Willamette Valley Southern, with headquarters at Oregon City, Ore., has resigned and the position of superintendent has been abolished.

F. D. Hunt has been appointed general manager of the Willamette Valley Southern. J. L. Stacer, superintendent, has resigned and his duties have been assumed by **C. M. Baker,** auditor. The general manager has assumed the duties of the traffic manager, Edwin Foster, who has resigned.

R. B. Mann, superintendent of the Baltimore & Ohio, with headquarters at Akron, O., has been appointed superintendent of transportation, with headquarters at Cincinnati, O. **S. U. Hooper,** superintendent, with headquarters at Garrett, Ind., has succeeded R. B. Mann as superintendent at Akron. **H. G. Kruse,** superintendent, with headquarters at Newark, Ohio, has succeeded Mr. Hooper. **J. E. Fahy,** assistant superintendent, with headquarters at Akron, Ohio, has succeeded Mr. Kruse.

Gilbert W. Groom, whose appointment as superintendent of the Central Vermont, with headquarters at St. Albans, Vt., was announced in the *Railway Age* of July 26, page 179, was born on August 26, 1874, at Rossville, Ill. He attended high school and normal school and entered railway service with the Chicago & Eastern Illinois. He subsequently served as a train dispatcher for the Pennsylvania at Buffalo, N. Y., and in the same capacity with the Grand Trunk at Belleville, Ont. He was then chief dispatcher for the Pere Marquette at St. Thomas, Ont., and Detroit, Mich. In 1908 he entered the service of the Central Vermont as a dispatcher and was promoted to chief dispatcher in 1912. In 1916 he became assistant superintendent and was serving in this capacity at the time of his recent promotion.

Purchasing and Stores

R. J. Elliott, purchasing agent of the Northern Pacific, with headquarters at St. Paul, Minn., has been placed in charge of the purchasing and stores department to succeed **F. G. Prest,** director of purchases, who has retired under the pension rules after 44 years of continuous service with this company. **L. Crassweller,** assistant purchasing agent, with headquarters at Seattle, Wash., has been transferred to St. Paul, Minn., and will be succeeded by **Paul McKay** as assistant purchasing agent.

Obituary

George P. Bullard, solicitor of the Southern Pacific, with headquarters at Phoenix, Ariz., died on July 25.

C. G. Boyer, general agent for the New York, Chicago & St. Louis, with headquarters at Memphis, Tenn., died in that city on July 21.

R. E. Sewell, formerly auditor of disbursements of the Louisville & Nashville, who retired from railway service in November, 1916, died in Clarksville, Tenn., on July 21.

John H. Dunlap, secretary of the American Society of Civil Engineers, died on July 29, at Chicago, from injuries received in a railroad accident at Buda, Ill., on June 30, while returning from the annual convention of the society in Pasadena, Cal., on June 18 to 21. Mr. Dunlap was born at Harrisville, N. H., on September 9, 1882, and was graduated from the Thayer School of Civil Engineering at Dartmouth college in 1905. During 1905 and 1906 he was engaged in engineering work with the U. S. Reclamation Service in Nevada, following which he returned to college to further his engineering studies. He subsequently served in the engineering department of the Pennsylvania Railroad during the summer of 1907 and the following year as field instructor in surveying at the Thayer School. Following his final degree in 1908, he joined the faculty of the University of Iowa, where he was subsequently promoted to professor of hydraulics and sanitary engineering in the College of Applied Science. He was also engaged in consulting work in civil and sanitary engineering. In April, 1917, he was elected an associate member of the American Society of Civil Engineers, and in June, 1921, a member. Approximately a year later, at the annual convention at Portsmouth, N. H., on June 21 and 22, 1922, Professor Dunlap was elected secretary of the society to succeed to the office left vacant by the retirement of C. W. Hunt, in 1920, and successively held since that time by Herbert S. Crocker and E. M. Chandler, each with the title of acting secretary.

J. H. Dunlap